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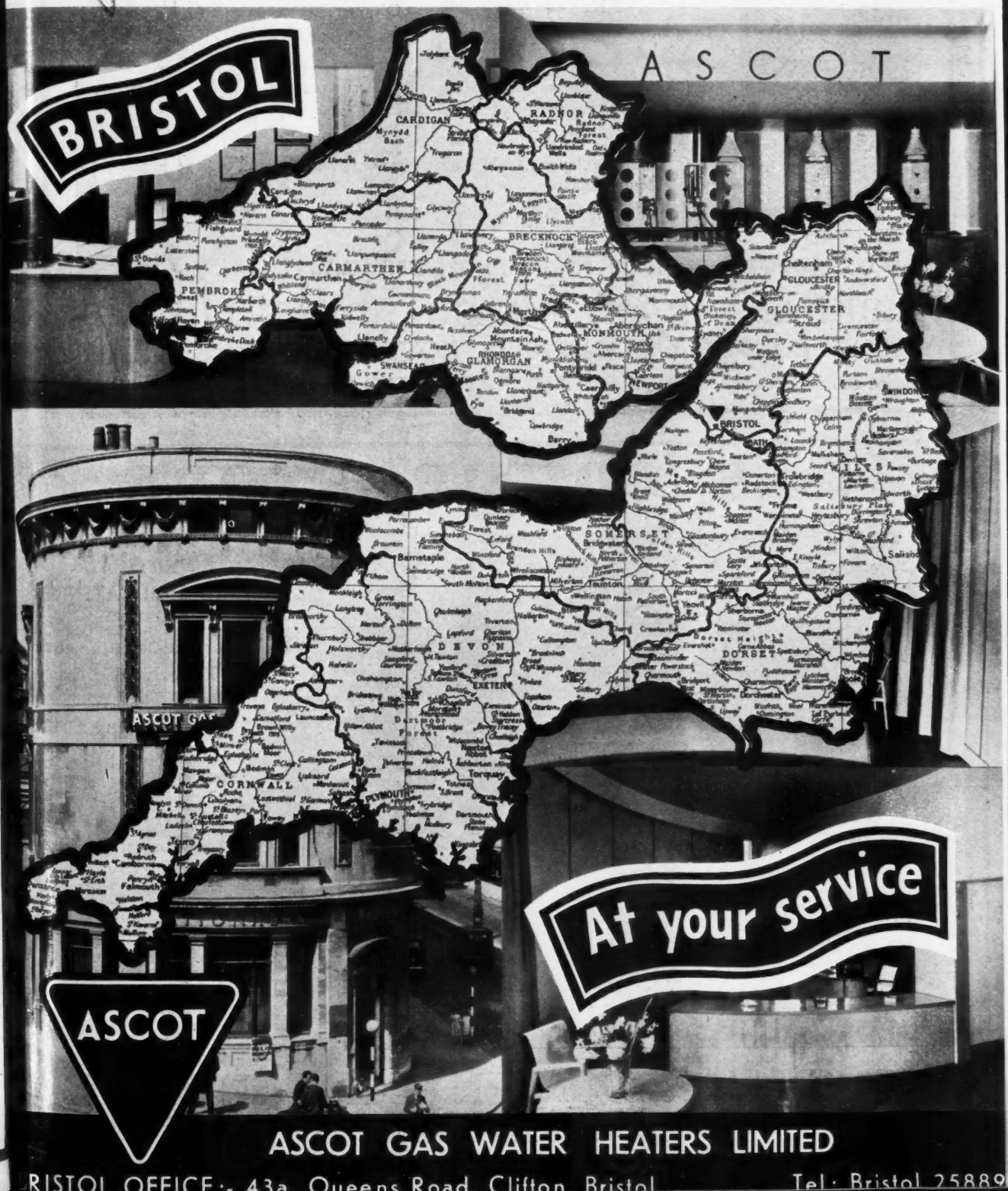

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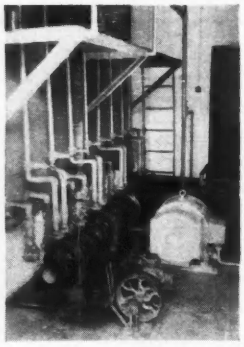

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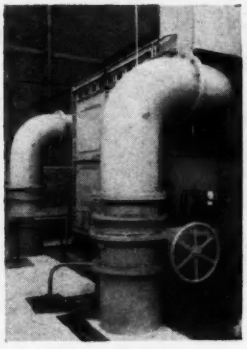

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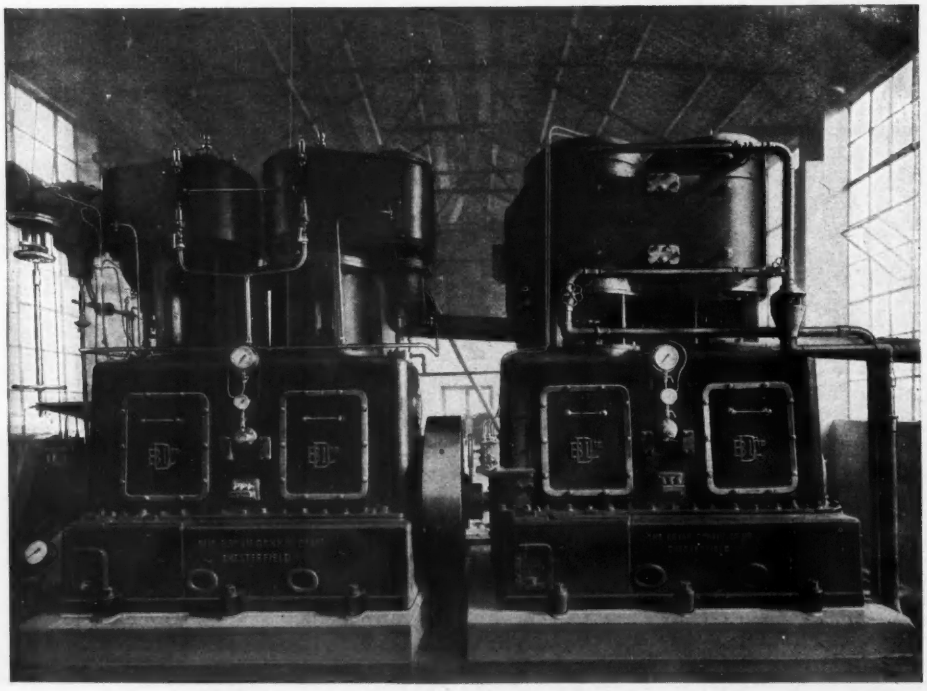

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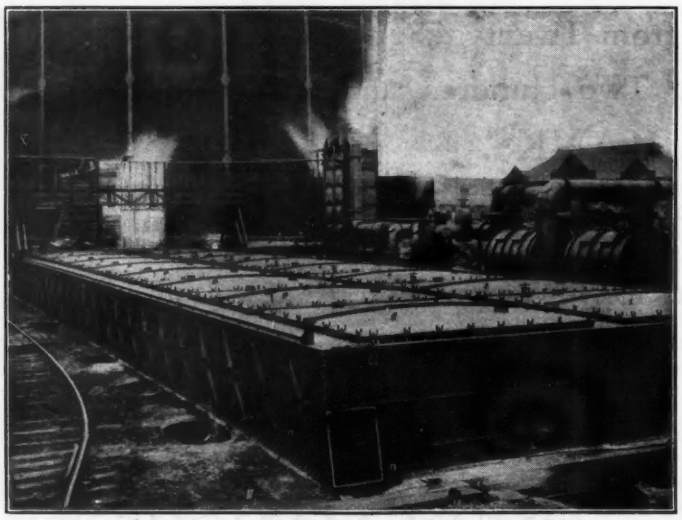

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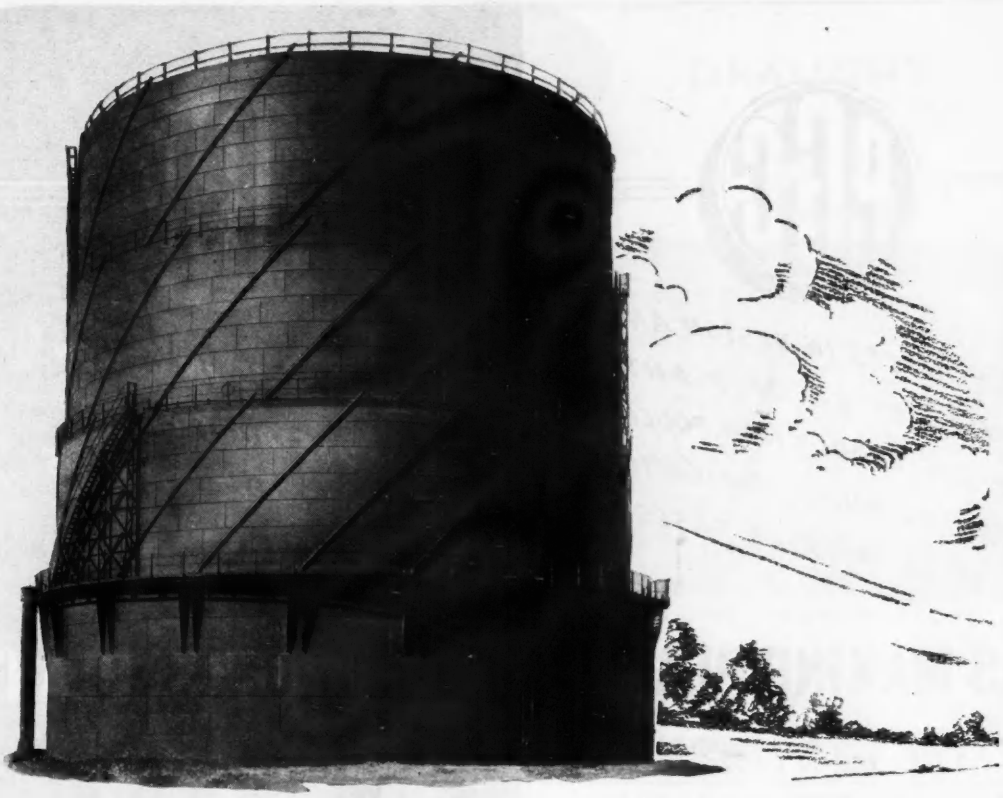

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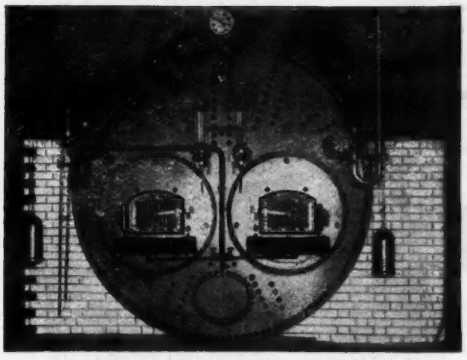

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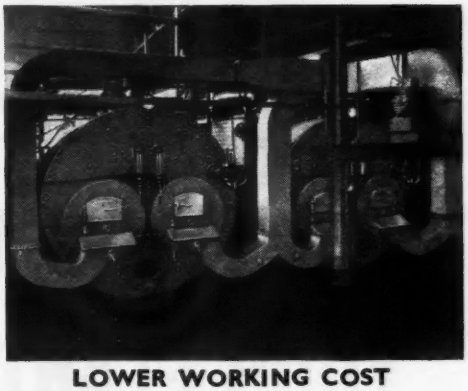

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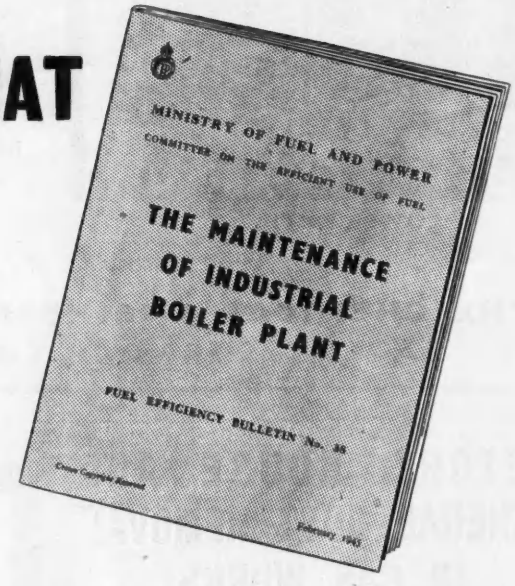
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COMMITTEE ON THE EFFICIENT USE OF FUEL
THE MAINTENANCE OF INDUSTRIAL BOILER PLANT
FUEL EFFICIENCY BULLETIN No. 38

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Additional copies of the Fuel Efficiency Bulletins and Fuel Watcher's badges can be obtained from the Regional Offices of the Ministry of Fuel and Power.

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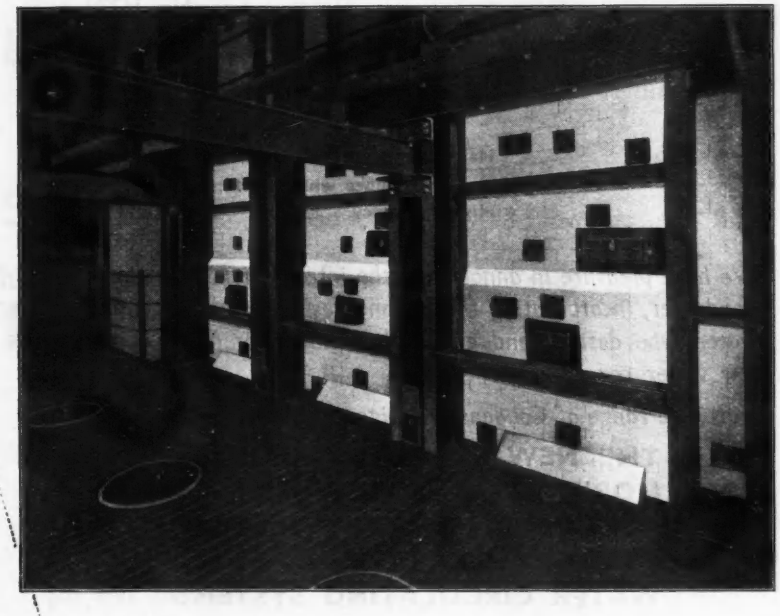

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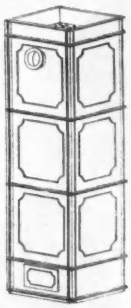

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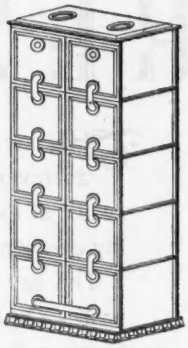
● Access to tubes while working



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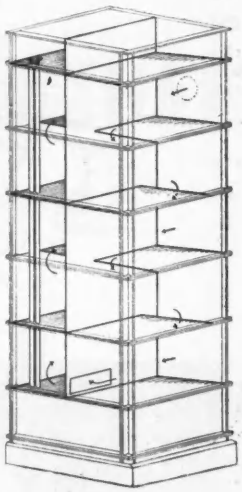

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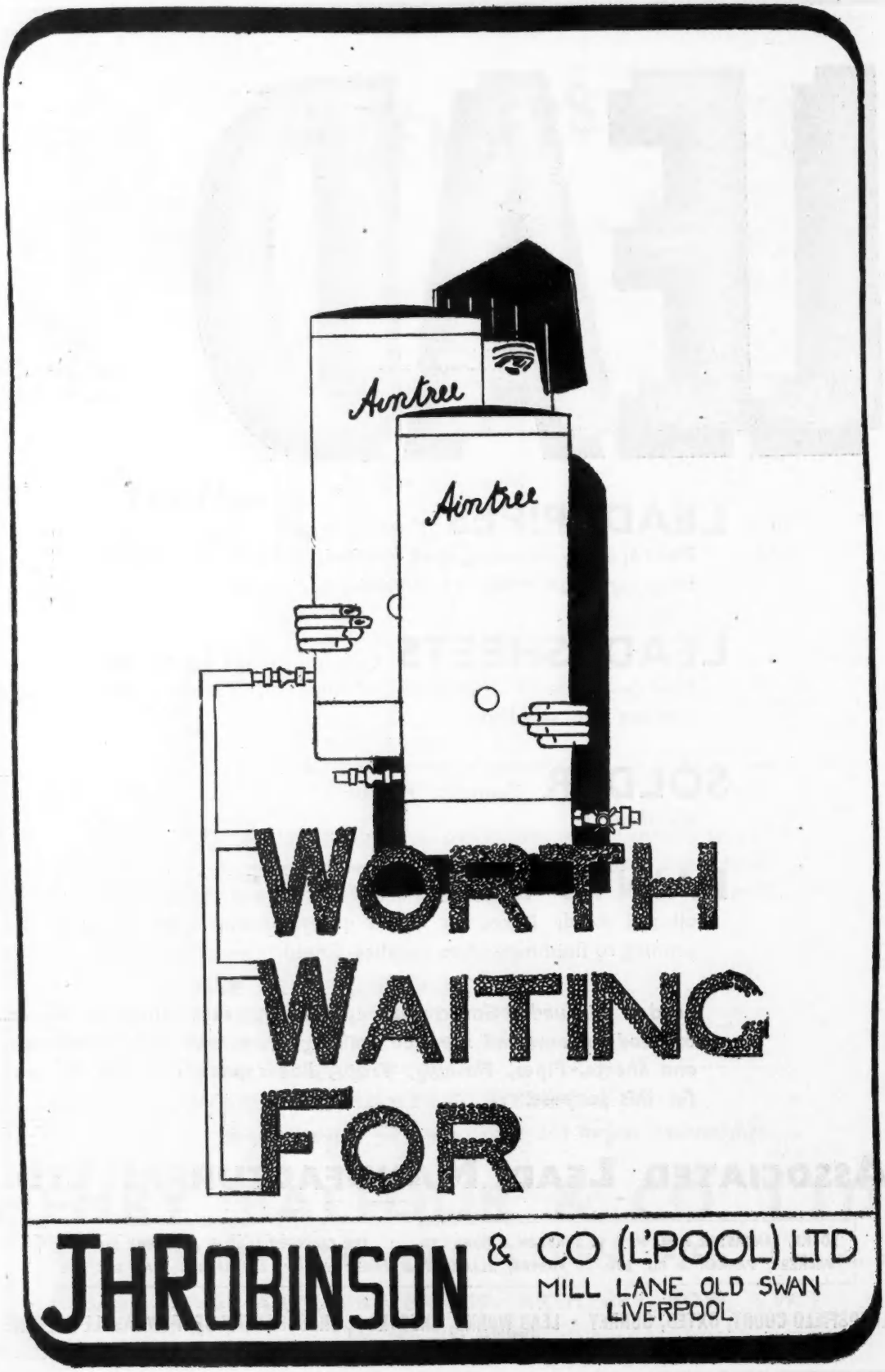
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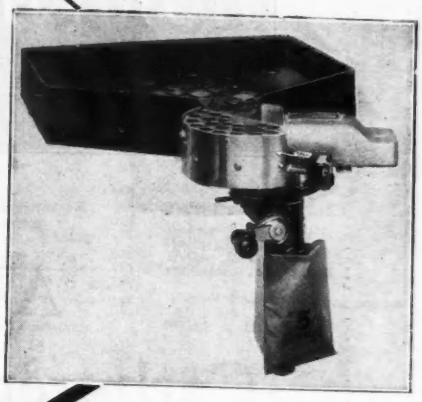

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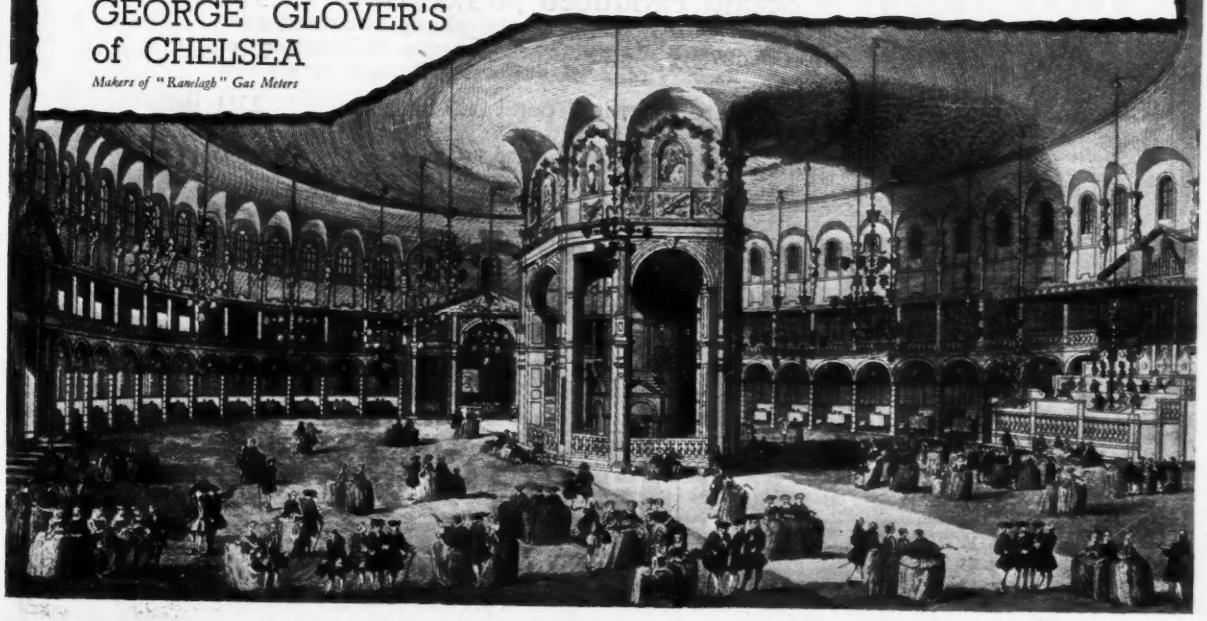

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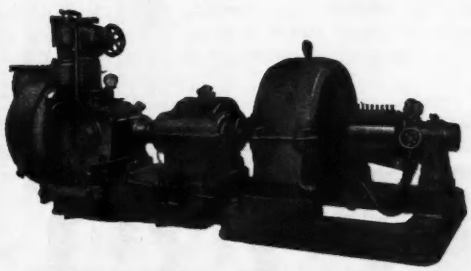
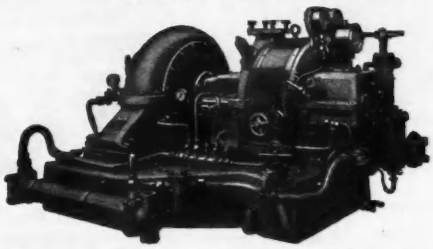


300 kW Back Pressure Geared Turbo-Generator.



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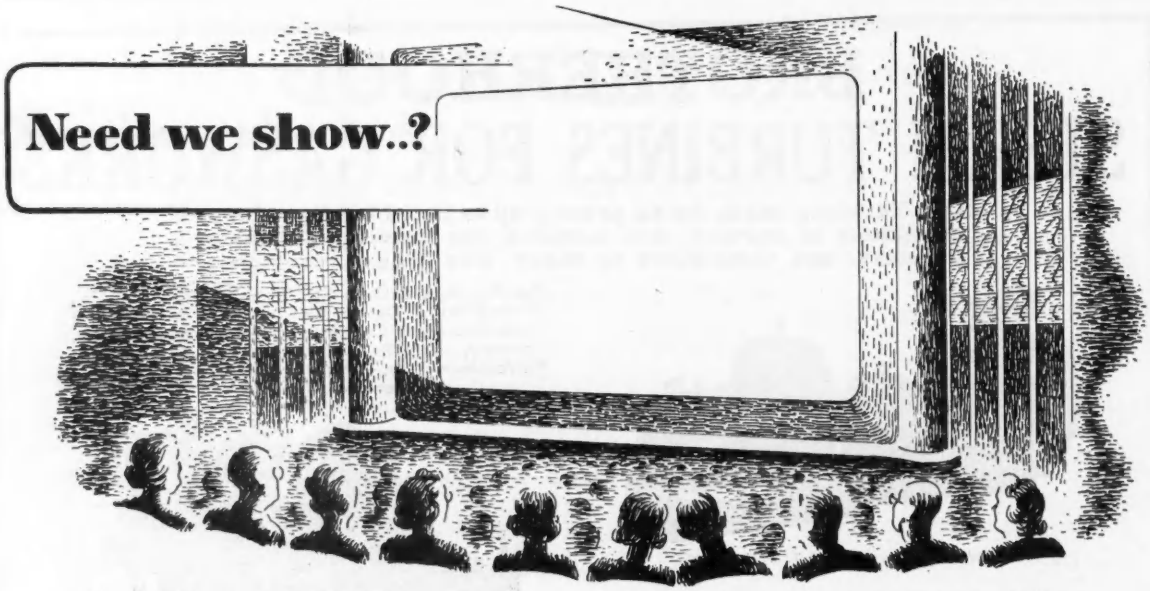

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GAS JOURNAL, MAR. 28, 1945

VOL. 245 97th YEAR No. 4271

EDITORIAL NOTES

NEW HOUSING

AFTER the issue of the Government White Paper on Housing and the two-day debate in the Commons last week we know better how we stand in regard to the post-war housing programme—a programme of first importance to the Gas Industry and every individual gas undertaking. Neither the findings in the White Paper nor the statements in the House were particularly exhilarating, and high hopes have had to give way to sober realities. Prior to the publication of the White Paper the Government had announced that the maximum target they can adopt with any prospect of fulfilment is one of 300,000 permanent houses built or building by the end of the second year after the hostilities in Europe. The plan is that of this total there should be about 220,000 completed houses at the end of the second year and 80,000 in varying stages of erection. There is also the provision of temporary dwellings—an aspect which somehow or other appears to have been eclipsed in the public mind by the Government's ultimate concentration on permanent housing.

Last year the Government were authorized to spend up to £150,000,000 on the provision of temporary houses, and the White Paper makes it quite clear that the intention is to press forward with their manufacture during the current year to the fullest possible extent. The rate of production will, we are assured, be limited only by the supply of labour, materials, and capacity. The length of time for which production will be continued thereafter will depend on the speed attained in the production of permanent houses. "The primary objective of the Government," states the Paper, " will be the provision of the maximum number of dwellings, permanent or temporary, in the emergency period." Which is a prosaic enough statement. In any event—and this is the point we would emphasize, for the Gas Industry has done a great deal of spade work turning and re-turning the ground in regard to gas service in these dwellings—the production of temporary houses will continue long enough to meet the allocations which have been made to local authorities, namely, 145,000. During the first two years after the war, then, the magnitude of the temporary housing programme is more than half that of the permanent housing programme. At the moment allocations made amount to 111,000 in England and Wales, and 34,400 in Scotland. In Scotland, the Secretary of State has said, the aim is a total of 52,000 serviced sites for temporary and permanent houses this year. The target is 50,000 permanent and 40,000 temporary houses within 10 years from now. The temporary housing programme is far from being a minor one.

In the House of Commons last Thursday the Minister of Health said emphatically that temporary houses represent the one and only means of giving, this year, a substantial increase in the number of separate houses. In September last year the Minister of Production referred to three types additional to the original steel prototype (a type now not included in the programme ; it seems unlikely that the pressed steel temporary house could be in large production until the spring of 1946, when, to say the least, it would be somewhat belated). The three types approved are the Uniseco, the Arcon, and the Tarran; they will constitute the bulk of the production, and the Ministry of Works has placed firm orders for them. "Whatever may be the ultimate total in excess of 145,000," Mr. Willink declared, " I wish to emphasize with all the force I have that they [*i.e.*, local authorities] must this year make possible the ordered progress of this programme. . . . Local authorities and my Department must ensure that all the sites required for the 145,000 houses which have been allocated are made available, ready for the erection of the houses before the end of 1945."

When we contemplate the needs of the people—a present need for 1,125,000 homes—the two-year programme outlined does not seem strikingly dashing; and it must be remembered that there are now six years of maintenance of existing houses to catch up. In the House on Friday last the Minister of Works in the course of a lengthy and detailed statement stressed that the rate at which the programme could be prosecuted was first and foremost a question of labour supply; without a labour force equal to the job, no amount of research into new materials or new methods of construction, no amount of planning and organization, would produce results. Which, of course, is a salutary reminder of conditions as they are to-day and as they are likely to be in the immediate future, but is hardly solace or consolation to those without homes. In any case it will be several months after the end of the war with Germany before expansion can be got under way. This fact Mr. Sandys was at pains to underline. In the meantime, the magnitude of the housing problem, into the solution of which the Gas Industry enters so intimately, is there and, indeed, grows daily.

AFTER DEMOBILIZATION

IN common with other public utilities the Gas Industry has an excellent record of service throughout the war year sand amid the many serious difficulties imposed by wartime conditions. Its output has materially increased, and it seems certain that the demands made on the Industry after the war will be greater than ever before. It has spent much time and thought on self examination, on how to organize to fulfil future requirements to better purpose. A committee set up by the Government is at present engaged in investigating the Industry in the widest possible sense. The potentialities for greater and more effective service in both the domestic and the industrial sphere are there. Naturally the extent to which these potentialities are transformed into factual development will depend on the quality of its personnel, from highest to lowest, and it becomes a prime necessity to attract the right type of entrant and to offer adequate encouragement to those within its ranks. There has been awakening to this necessity, which awakening gives rise to considerable hope.

We set down these few thoughts in view of a letter we have received from an officer in the Forces which we publish in our issue to-day. The letter poses the query of what is going to happen to former employees of gas undertakings on their return after demobilization; it questions the sort of welcome they will meet and asks what will be done to rehabilitate them in an atmosphere of encouragement and goodwill; it puts forward a plea that the Gas Industry should do "something substantial" to restore confidence in the Industry as a career.

Our correspondent can rest assured that the Gas Industry has this very problem very much at heart and has given and is giving the closest attention to it—as a matter of fact, for some months a specially appointed committee of the I.G.E. has had the question under review. As far as gas engineers are concerned—men whose qualifications necessitate lengthy training of a high technical standard—their requirements, it would appear, will be adequately covered by the Government Scheme for Further Education and Training, details of which have already been published. Arrangements have been made for courses for those who entered on their war service before going to a university or undertaking some other training designed to equip them for their professional career; courses for those whose education has been interrupted by war service; and refresher courses for the older groups. The award to a successful applicant will be in the form of a grant enabling him to take the full course of training which he may need, the amount varying according to his existing obligations, his financial resources, and the length

and nature of the course approved. All of which appears to us eminently satisfactory and as offering thoroughly practical encouragement.

When one turns to categories such as the gasfitter the case is different, but the Gas Industry has not been idle in its endeavour to arrive at a workable and satisfactory solution. Demand for skilled gasfitters is likely to exceed supply, from which it follows that gasfitters, on laying down arms and substituting them by tools, will not suffer from lack of encouragement. There will be an immense amount of installation work to be carried out. A fitter with a modicum of common sense and enthusiasm will be assured of a good job. We well realize that gas undertakings will need skilled and trained men with understanding of wartime developments in installation technique. In its own interests—which is only another way of saying in the consumers' interests—the Gas Industry will have to find ways and means of explaining to ex-Service men what is required of them. The responsibility is one which each individual gas undertaking will have to shoulder. We have discussed the matter before in these columns, pointing out that this aspect of rehabilitation affords the larger undertakings a great opportunity of helping their smaller neighbours—assistance for which the smaller undertakings should be prepared to pay. There will be the fully trained fitter who was working as a fitter before the war, and the apprentice or trainee fitter who was called up before his initial training as a fitter was complete. The first class, and the less numerous, will need a refresher course which will have to be coupled with the acquisition of knowledge entirely new. Whatever the method adopted and whatever the duration or nature of the course, the outcome must be a thoroughly refreshed fitter capable of meeting new requirements, with all his former skill restored. In regard to the apprentice fitter, the length of course necessary will depend on the extent to which training had been completed before call-up and the nature of the youth's (maybe the man's) wartime occupation. Generally a longer and more complete course will be necessary. The point which we would emphasize is that the problem in all its aspects is being actively studied by the Gas Industry. The Industry, realizing how much will have to be done after the war, is cognizant of its man-power requirements. The man who doffs battledress to don overalls can be assured of a satisfactory deal and practical encouragement from the Industry. At the same time our correspondent's letter, so expressive of desire to give freely to an Industry out in its turn to encourage those returning from the Services, does point to the need for the Industry—in other words, each individual gas undertaking—to make its plans known clearly and unmistakably to those serving overseas amid such a different environment.

LEEDS UNIVERSITY

THE latest report of the Livesey Professor is thoroughly encouraging, and the Gas Industry will heartily welcome the expansion of the Fuel Department at Leeds University—a Faculty in which for so many years it has had close and direct interest and to which it undoubtedly owes much. The story of this expansion in Dr. Townend's modest formal statement covering the 1943–44 session is accompanied by an equally modest indication of how effectively and to what good purpose the Department has satisfied wartime demands of widely varied nature. Apart from special work for several Ministries—Home Security, Fuel and Power, Supply, Aircraft Production—development has primarily been in the field of chemical engineering, in which direction activities have been stimulated by further gifts in the Brotherton tradition. The generous support of Mr. Charles Brotherton has resulted in the creation of a Brotherton Lectureship in Chemical Engineering, provision of equipment for the teaching work in this field, and an increase in the number of Charles Brotherton Scholarships in Gas or Chemical Engineering from two to four. The Gas Industry (the Joint Finance Committee of the I.G.E. and the B.G.C.) has given further financial assistance which, coupled with the help of several constructional firms, has enabled progress to be made in the provision of both laboratory and workshop equipment.

Dr. Townend's routine document impresses us with its hope for the future. From small beginnings, albeit inspired with enthusiasm, the Fuel Department, embracing three major fields—Chemical and Gas Engineering, Metallurgy, and Ceramics, and Refractory Materials—presents a compact and purposeful ensemble. The three fields interlock so well, a course in any one of them logically involving the others. On the research side much of the success of the Department is directly traceable to this intimate contact of activity and experience. As for the training side, in the session reviewed by the report there were 64 registered students of the Department, compared with 45 in the previous session. In the current session there are 73 students. Present accommodation for either research or training is wholly inadequate, in spite of numerous makeshifts in the interests of expediency. We have had a good deal to say about this inadequacy and we will not enlarge upon it now. It is recognized and appreciated, and for the sake of the Gas Industry we are very glad indeed that this prickly problem has been firmly grasped. Proposals—quite detailed proposals—have been put forward for more appropriate accommodation at an estimated cost of not less than £120,000. Circumstances may enforce a time-lag in the execution of this wholly admirable project dictated by proved present and likely future needs, but the project calls out for implementation, and the sooner the better. Reference to Professor Townend's report will be found on a later page.

Reorganization of Ministry of Works

Throughout, the Gas Industry has offered its services freely to every Government Department concerned with the housing problem—in which connexion, as we mentioned in these columns a fortnight ago, the work of the Industry's representative body dealing with the matter, the Domestic Heat Services Committee, has not been, and is not to-day, at all light. Detailed, varied, and undoubtedly constructive has been the contact of the Industry with the Ministry of Works; and Mr. Sandys' intimation in the House of Commons last Friday of the way in which the work of the Ministry is henceforth to be divided is of importance to us all. From now on there are to be four departments.

The first will be that of the Permanent Secretary, who will be responsible for general co-ordination of policy, finance, and most of the functions previously performed by the old Office of Works.

Secondly will be the department of the Controller-General, who will be responsible for building materials, labour, licensing, control of prices, and generally for conducting the relations between the Ministry and the building industry.

Thirdly will be the department of the Director-General, who will execute all the Ministry's building responsibilities, including factory production, transport, and the erection of temporary houses, and any similar functions which the Government may assume in regard to prefabricated permanent houses. General Sir Frederick Pile has been appointed to this office.

Fourthly, there has been set up a separate department to undertake scientific research and development, experimental building, and the dissemination of technical information. At the head of this department is Sir Reginald Sterdling, formerly Director of the Building Research Station.

The heads of those four sections, together with the Parliamentary Secretary and the Minister, will form the Ministry of Works Council.

An Educational Example

Of late and for obvious reasons there has been much discussion on training schemes in industry. In this regard we have been much interested and not a little impressed by a booklet we have received from the Stanton Ironworks Company, Ltd., dealing with their own training scheme. The scheme is not new, but it is being developed to cope with future demands and a Training Officer has been appointed to be responsible for its development. In point of fact the scheme was originated by the Company as long ago as 1918; for more than a quarter of a century junior employees have been assisted in continuing their education after joining the firm, the Company meeting the cost of the courses. The scheme is designed to provide for the training of all young people joining the Company's service by placing them in appropriate educational and works training courses, and thereby giving them every opportunity to develop their natural abilities and obtain recognized academic qualifications. Entrants to any department of the Company's organization will find a suitable course

available. Boys under 16 years of age wishing to become trade apprentices will be required to follow a pre-trade Apprenticeship Course. Those who complete this course satisfactorily will, on their 16th birthday, join entrants of that age in the Trade Apprenticeship Course and enter into an Apprenticeship Agreement with the Company. Attendance at technical schools or colleges for one day a week will be necessary in many cases, the Company paying for the time so spent and the necessary expenses incurred. Successful students will be rewarded by bonus additions to their wages. While thoroughly conscious of the need of students and trade apprentices for technical training, the Company is equally concerned with employees who do not undertake apprenticeships or similar courses. This group will comprise the future works operative force, and evidence of ability will be recognized by transference to a course giving more scope for advancement. The scheme is very wide in range and is planned on most generous lines; it should enable the Company to find trained and contented personnel to fill responsible positions within the organization.

Personal

We are glad to announce that Mr. TOM BROWN (Chairman of the Domestic Heat Services Committee) is making good progress towards recovery from injuries sustained through enemy action recently.

* * *

Mr. C. E. N. FRESHNEY, Assistant Engineer and Manager at Paisley Corporation Gas-Works, has been presented by employees and staff with a gift to mark his departure to become Engineer and Manager to the Newton-on-Ayr Gas Company, Ltd. He has been in Paisley since 1936. The gift was handed over by Mr. S. Smith, Engineer and Manager, who spoke appreciatively of Mr. Freshney's services.

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Mr. ARTHUR FACER, Deputy Gas Engineer and Manager, Carlisle, has been appointed to a similar position with the Paisley Gas Department.

* * *

Mr. W. S. MATTHEWS has been appointed Training Officer to the Stanton Ironworks Company. Prior to this appointment he held the position of Assistant Manager to the Company's Coke Oven Department, having previously been engaged on the Technical Staff of the Derby Gas Light and Coke Company.

Letters to the Editor

Gas Staff Organization

DEAR SIR,—Mr. L. M. Brown, in your issue of March 7, had drawn another "red herring" across the path of progress in gas staff organization. It is sincerely hoped that his letter is one of genuine enquiry, and that he is not merely displaying his zeal as Secretary of the Stockton-on-Tees Branch of the Association of Engineering and Shipbuilding Draughtsmen, in raising purely sectional interests within the Gas Industry.

The Gas Staff Association is an industrial association because it recognizes that for the vast majority of gas staffs the Gas Industry is "the goose that lays the golden eggs." The welfare and prosperity of the Industry is essential to the welfare and happiness of gas staffs. With that in mind, the Gas Staff Association was formed to organize and unite all gas staffs so that the experience and knowledge of each and every member should be available in maintaining and furthering the position of our Industry. The vast majority of gas staffs will spend the whole of their business lives in that Industry, and will not sell themselves to the highest bidder at the first opportunity that presents itself.

The Gas Industry is an essential service, and, we believe, will continue to be, so that the level of employment tends to remain constant. Even draughtsmen in the Industry have a security of employment hardly obtainable in the engineering and shipbuilding industries. Moreover it must be remembered that minimum standards are generally negotiated by craft associations, so that Mr. Brown's ultimate working conditions are controlled to a large extent by the relative prosperity of his particular industry. For these reasons we suggest that our draughtsmen should put first things first and become gas-minded. Is Mr. Brown suggesting seriously that all gas staff workers should disintegrate into their so-called crafts and professions, and join the many respective organizations, without further contact with their business colleagues?

Is it not possible that some of the major difficulties which beset our Industry to-day are caused by the strict adherence to sectional interests, on the part of both employers and employees? Only when we are all prepared to give up some of these can progress be made. Of course, there should be intercourse with opposite numbers in other industries, but this should be in an academic and professional way. Let draughtsmen meet draughtsmen, and engineers meet engineers, and chemists meet chemists, &c., but let all gas staffs be united in presenting a common front to our own industrial difficulties.

To sum up, craft and professional organizations should exist alongside industrial organizations. Sectionalism and jealousies must be subordinated to a unity of purpose on the part of employers and employees alike. The Gas Industry remains our livelihood, so that its efficiency and prosperity must be our primary aim.

The Gas Staff Association asks for the allegiance of *all* gas staffs in the organization of their welfare and happiness. To the employers it offers the accumulated knowledge and experience of gas staffs. We are proud to belong to the Gas Industry, proud to be an industrial organization. We have no sectional interests. We support neither the South of the Thames, nor the North of the Thames; neither the Provinces nor London; neither municipal undertakings nor private undertakings, neither this organization nor that organization. We support the Gas Industry, and mean to work for it, and, in this, we venture to suggest, the Gas Staff Association is unique.

The Gas Staff Association,
36, *Parkthorne Drive*,
North Harrow.
March 21, 1945.

Yours faithfully,
H. J. ARNOLD,
General Secretary.

After Demobilization

DEAR SIR,—Cologne has fallen; the Russian Armies are massing at the gates of Berlin City. Soon thousands of gas-workers will be massing at the gates of once-familiar gas-works, all wearing overalls in place of battledress, carrying tools in place of guns, for the first time after these many long years of war.

There is no doubt about the eagerness of those who first enter the gates of our enemy's cities. How their hearts must overflow with proud exhilaration! But will the first entry through the gas-works gates inspire those same emotions? Or will it just produce that nauseating "Monday morning feeling"?

It is painfully obvious that a returning ex-Service employee with spirited enthusiasm is of more potential use to his employer and himself than a man depressed and apathetic. The average serving man is, I am convinced, so out of touch with his pre-war job that his interest has lagged; he feels he has lost ground which he will never make up. But just some encouragement, just some promise of post-war prospects and a chance to recover what he has lost, will make an enormous appeal to his enthusiasm while he is in his present state of mental instability.

Through the kindness of the Editor I remain anonymous, because as such I can make a personal plea to all employers on behalf of serving men. Please, I implore you, do something positive and substantial to restore our confidence in the Gas Industry as our career, and please do it now. We have been away a long time; we want to come back, but we want to know what to. We promise you the best our labour and brains can provide. Can you promise us something in exchange? It would be so generously appreciated, and it is in our mutual interest.

March 7, 1945.
C.M.F.

Yours faithfully,
LIEUTENANT "FIGHTING THERMOS."

Diary

April 5.—Domestic Heat Services Committee: Gas Industry House, 2.30 p.m.
April 10.—British Gas Council: Gas Industry House, 2 p.m.
April 10.—National Federation of Gas Coke Associations: General Committee, 10 a.m. Gas Industry House.
April 12.—Industrial Gas Centres Committee: Newcastle-upon-Tyne and Gateshead Gas Company's Offices, 10 a.m.
April 12.—Institute of Fuel: City and Guilds of London Institute, South Kensington, S.W. 7, 2.45 p.m. Address by Dr. E. W. Smith, C.B.E.
April 12.—North British Association of Gas Managers: Spring Meeting, Johnstone.
April 13.—Institution of Chemical Engineers: Annual Meeting, 11 a.m.; Luncheon, 1 p.m.; Connaught Rooms, W.C. 2.
April 16.—London and Counties Coke Association: Finance Committee, 11 a.m.; Executive Committee, 11.30 a.m.; Central Committee, 1.30 p.m. Gas Industry House.
April 20.—Manchester District Association of Gas Engineers: Visit to Mirfield.
April 27.—Manchester District Association of Gas Engineers: Annual General Meeting.
May 3.—Southern Association of Gas Engineers and Managers: Grosvenor House, London, 2.30 p.m. Address by A. E. Sylvester.
May 10.—Eastern Counties Gas Engineers' and Managers' Association: Spring Meeting, Grosvenor House, W. 1. Presidential Address of J. Hunter Rioch.

Heat and Air Systems, Ltd.—We regret that an incorrect address was given in this Company's advertisement last week. It should be 172, Buckingham Palace Road, London, S.W. 1.

British Gas Council

A Meeting of the British Gas Council was held at Gas Industry House on March 13, presided over by the Chairman, Mr. A. E. Sylvester, F.C.A.

On behalf of the Council the Chairman welcomed Colonel C. M. Croft, who was present for the first time after a recent illness.

It was agreed that a message of sympathy should be sent to Mr. T. Brown on behalf of the Council, with their good wishes for his recovery from an injury suffered by him as a result of enemy action.

The Chairman reported the resignation of Mr. A. W. Smith, C.B.E., F.C.I.S., General Manager and Secretary of the City of Birmingham Gas Department, from all the Committees and Councils on which he served, as he was retiring from his position on the Birmingham Corporation. Many moving tributes were paid to Mr. Smith by his fellow-members, particularly by those who had known and worked with him in his early years. The Chairman said he was undoubtedly one of the most prominent members of the Gas Industry, and his absence from their deliberations in future would be a sad loss. Although he personally had not had the benefit of knowing Mr. Smith as long as had many others on the Council, he had quickly learnt to appreciate him as the great man he was and as a great asset to the Industry.

The Chairman was followed by Mr. W. J. Sandeman, Mr. S. E. Whitehead, Colonel H. C. Smith, Colonel F. J. Bywater, Mr. F. C. Briggs, and Mr. G. E. Currier, and it was unanimously agreed that Mr. A. W. Smith be nominated for Honorary Membership of the Council under Rule IV(4).

A report from the Executive Board, dealing mainly with the composition and functions of the various Committees of the Council, was received and adopted.

Gas Advisory Committee to the Ministry of Fuel and Power.—A report was received from the Chairman of the Committee (Mr. A. E. Sylvester) on (1) a Deputation to the Fuel and Power Advisory Council on March 2, and (2) the meeting of the Committee held the previous day, when the following were among the matters discussed: amalgamation or change of ownership of gas undertakings; gas to new housing estates.

Coal.—A report on the general position was received, and it was unanimously agreed that the Council address a letter to the Ministry of Fuel and Power, urging his Ministry to seek every possible means of augmenting the supplies of gas coal to gas-works.

Tar Advisory Committee.—Dr. E. V. Evans, O.B.E., Chairman of the Committee, reported that, under the Emergency Powers (Defence) Coal Tar Product Prices Order, the prices for pitch, pitch creosote mixture, and road tar had been increased.

Taxation and Rating Committee.—A report of the meeting of the Committee held on March 1 was received, referring to the Income Tax Bill now before Parliament and stating that a deputation from the Committee was waiting on the Chief Inspector at Somerset House on March 21, to discuss various aspects of the Bill.

Conjoint Conference of Public Utility Associations.—A report was received regarding: (1) Mains and cables in highways, and (2) requisitioned land and War Works Bill.

Publicity Committee.—Mr. W. J. Sandeman reported that all the recommendations agreed at the previous meeting of the Council had been put in hand.

British Tar Confederation.—A report of the meeting of the Executive Board of the Confederation on Feb. 28 was received, containing, inter alia, the terms of reference to the Technical and Survey Committees of the Confederation.

National Gas Council.—It was agreed that the Annual Meeting of the Council should take place on June 14.

The date of the next meeting of the British Gas Council was fixed as April 10.

Midland Association

The Annual Meeting of the Midland Association of Gas Engineers and Managers was held in Birmingham on March 15. Mr. T. F. E. RHEAD (Birmingham) occupied the chair prior to the assumption of the office of President by Mr. A. B. BRITTON (Hinckley).

Mr. RHEAD welcomed the presence of an overseas friend, Mr. H. E. Stone, Engineer and General Manager of the Hong Kong and East China Gas Company, and of the Colombo Gas and Water Company.

Mr. STONE said he was fortunate in not being in Hong Kong when the Japanese walked in. He was in Ceylon at the time, though all his staff were not so fortunate.

Mr. RHEAD said Mr. Savage from Calcutta called on them about three weeks ago and had now gone to Durban upon retirement.

The following elections were made:

Vice-President: George P. Mitchell (Worcester).

Committee: F. H. Bate, J. E. Stannier, and P. Dougall.

Auditors: O. S. Brettle and W. L. S. Spinks.

Dr. Harold Hartley (Radiation Ltd.) and Mr. R. G. Warr (Birmingham Gas Department) were elected new members.

Mr. J. H. Wainwright was appointed the Association's representative on the Council of The Institution of Gas Engineers.

The following were elected to represent the Association on the Midland District Education Committee: G. C. Pearson, C. F. W. Rendle, H. R. Hems, and S. K. Hawthorn.

It was agreed that a donation of fifty guineas should be contributed to The Institution of Gas Engineers' Benevolent Fund.

Mr. RENDLE congratulated the members on the excellent support that was being given to the Fund. Of their members in the Institution 80% contributed to the fund; only 43, however, out of 96 contributed by deed of covenant. If all signed that form it would add 50% to their contribution to the fund and not cost the subscribers a penny extra.

Mr. HEMS gave a brief report on the work of the Midland District Education Committee.

Mr. WAINWRIGHT gave a report as representative on The Institution of Gas Engineers.

Mr. RHEAD spoke of the work of the Midland Gas and Allied Industries University Collaboration Committee which arose out of the meeting last April at Birmingham University. Following this the Association decided that an *ad hoc* Committee should be formed including members of the Association and of Midland allied industries, such as appliance manufacturers, chemical manufacturers, tar distillers, and so forth, to see in what way they could collaborate with their own University. That Committee had got down to work and had had two meetings which had been of an exploratory character. At the first meeting the Vice-Chancellor spoke to them about universities in general and the Birmingham University in particular, with special reference to post-war developments. At the second meeting they had Acting Professor Stacey Ward, who dealt with the expansion of the Coal Utilization Department, which is at present attached to the Mining Department. They were in touch with the national bodies in London to ensure that locally there was co-ordination with national policy.

Mr. H. R. HEMS gave a report of the Midland District Education Committee. Through the good services of Mr. A. W. Smith and the Birmingham Gas Committee, tutorial classes had again been held at the Technical College, and the two teachers, one on supply and the other on manufacture, had been provided from Birmingham. The main subjects of discussion had been the revision of the I.G.E. Education Scheme and proposals for the refresher courses (which matter was raised by the Midland Junior Gas Association), and the 1944 Examination questions, upon which he outlined the decisions arrived at.

Mr. RHEAD then inducted the new President.

Mr. BRITTON, who expressed appreciation of the honour, gave his Presidential Address. [This will be dealt with subsequently in the "JOURNAL."]

Mr. G. C. PEARSON, proposing a vote of thanks to the President, said it was doing a disservice to the Gas Industry if they did not prepare coke properly for the market. He also referred to University trained men. They had to educate the University man, and they had to educate the various works to adopt his services. They talked about two types of men, the man who had learned in practice and the man with a University training, and compared them. When proper training was universal throughout the Gas Industry, the man who had learned by practice only would drop out. All the junior positions would be filled by men who had fundamental training, and on that groundwork they would be able to build fully qualified gas engineers.

Mr. G. P. MITCHELL (Worcester), in seconding the vote, said he entirely agreed with the President that the college trained man ought to have practical experience—best gained before he went to college. If a student went straight to a university from school, when he had finished his university training he expected a reasonable salary and a reasonable position. Then he began to realize that he was entering an entirely different phase of his life, that he had to learn things all over again and find out how to apply his knowledge. He would like to suggest that the Education Committee should consider whether a student should not have at least a year of practical training before he entered college.

Mr. F. BURTON (Chairman of the Hinckley U.D.C.) said he had been a member of a Gas Committee for 26 years, and his younger brother was Gas Manager at Shipley. Hence his interest in the Gas Industry was deep. Having paid tribute to the President's work at Hinckley, Mr. Burton, on behalf of the Council, invited the Association to hold their spring meeting at Hinckley.

The invitation was enthusiastically accepted, and the date fixed for the visit was May 24.

The PRESIDENT announced that Mr. A. W. Smith had been unanimously elected an Honorary Member on his forthcoming retirement as General Manager and Secretary of the Birmingham Gas Department.

Mr. SMITH acknowledged the honour.

"Mr. Therm Went to War" was the title of an article in a recent issue of the *Evening Chronicle*, describing the part played by the Newcastle-upon-Tyne and Gateshead Gas Company during the war years. Reference was made to the air-raid damage done in August, 1940, to the South Shields Gas-Works, which received direct hits. Thanks to the linking up of the distribution system, the supply of gas continued unaffected while repairs were carried out. The works suffered yet more damage in 1941, in which year much of the plant at North Shields was totally destroyed; but supplies to all consumers were little affected.

Institution of Gas Engineers

The Council of The Institution of Gas Engineers met in London on March 13.

It was reported that 126 Members, Associate Members, Associates, and Students are now serving in H.M. Forces.

A report was made of the work of the following Technical Committees of the Institution:—(*a*) Joint Lighting Committee : It was reported that Mr. F. C. Smith (London) had been elected Chairman of the Joint Lighting Committee, in the place of Mr. George Dixon, B.Eng. (Nottingham), resigned. (*b*) Meters Committee, (*c*) District Heating Committee, (*d*) Liquor Effluents and Ammonia Committee.

A report was made of a recent meeting of the Board of Examiners, and nominations to serve on the Board for the three years 1945–48 were approved.

A report was made by the Chairman of the Council of the Gas Research Board of the current activities of the Board.

Further consideration was given to arrangements for the 82nd Annual General Meeting provisionally arranged to be held in London in June.

A report was made of the recently published Report of the Hankey Committee on Higher Appointments, and of a discussion thereon with the Director of Appointments of the Ministry of Labour and National Service.

It was reported that Mr. H. J. Escreet had been appointed to represent The Institution of Gas Engineers on a Joint Committee of the Institutions of Civil and Municipal and County Engineers to consider the preparation of Notes for Engineers on the Location of Underground Services.

A report was made of the Conference on the Preparation and Utilization of Coal organized by the North-Western Section of the Institute of Fuel and held in Manchester on Feb. 28, at which the quality of coal required by the Gas Industry, *inter alia*, was discussed.

It was reported that Mr. D. Cleave Cross had been appointed a member of the Executive Committee of the National Smoke Abatement Society.

It was reported that two prominent French gas engineers, M. Claude Desanges and M. Pierre Agron, had recently visited this country on an official mission and had been welcomed by the President of the Institution.

The publication was reported of the Report of the Livesey Professor (D. T. A. Townend, D.Sc., Ph.D., D.I.C.) for the Session 1943–44.

It was agreed that the next meeting of the Council should be held in Leeds to enable members of Council to inspect the work of the Gas Research Board in the Laboratories of the Fuel Department of the University.

The Fuel Department at Leeds

In the course of his Report on the work of the Fuel Department at Leeds University during the session 1943–44, the Livesey Professor, Dr. D. T. A. Townend, states that the activities of the Department have continued to expand, particularly in the field of chemical engineering. Student entry has increased still further, this being marked in Metallurgy, for the study of which six State Bursaries were awarded. There has been general expansion of research, special mention attaching to the field of refractories and non-metals. Also, the demands of Government Departments for investigations of urgency to the war effort have continued to be heavy.

"Our work," continues Professor Townend, "has been greatly stimulated by further most generous support from Mr. Charles Brotherton, J.P., who has recently completed a seven-year Covenant in favour of the University, assigning £1,000 per annum to create a Brotherton Lectureship in Chemical Engineering, as well as to provide equipment for the teaching work in this field; he has further donated £1,000 for immediate needs, and has increased the number of Charles Brotherton Scholarships in Gas or Chemical Engineering from two to four. An Assistant Lectureship in Metallurgy has been established.

"Thanks to further financial assistance from the Joint Standing Finance Committee of The Institution of Gas Engineers, the National Gas Council, and the British Commercial Gas Association, as well as from the Power Gas Corporation, Ltd., and Humphreys & Glasgow, Ltd., progress has been effected in making provision for both laboratory and workshop equipment.

"It is a pleasure to record generous help with special equipment by Baker Perkins, Ltd., Thomas Broadbent & Sons, Ltd., the Enamelled Metal Products Corporation, Ltd., S. H. Johnson & Co., Ltd., Kestner Evaporator and Engineering Co., Ltd., Newton Chambers & Co., Ltd., and Robert Hudson & Co., Ltd.

"At the last meeting of the Livesey Advisory Committee (December, 1943) a Sub-Committee was appointed to confer on the future development of the Department; almost immediately the Post-War Planning Committee of the Senate was called upon to complete a report on the needs of the University as a whole, for ultimate submission to the University Grants Committee. In this connexion a memorandum on the future development of the Department was prepared; and its proposals were subsequently incorporated in the report submitted by the University Council to the University Grants Committee.

"Briefly the proposals were as follows: The grouping of subjects covered by the activities of the Department is fortunate; the three main fields, Chemical and Gas Engineering, Metallurgy, and Ceramics and Refractory Materials (technology of non-metals), interlock, a course in any one of them involving the others. On the research side much of the success of the Department has been a direct outcome of this intimate contact of activity and experience. While the Department should remain an ensemble, the subjects of Metallurgy, and Ceramics and Refractory Materials, should continue to develop under the immediate control of the specialists concerned."

Following recommendations regarding the staffing of the Department the report continues: "The total floor space of the present building approximates to 14,000 sq. ft.; improvizations in out-buildings have provided a further 3,300 sq. ft. A new building of not less than 40,000 sq. ft. is now necessary, at a total estimated cost, including equipment, of not less than £120,000."

In regard to students, there were 64 registered students of the Department in 1943–44. This compares with 45 registered students in 1942–43. The Introductory Courses in Fuel and Metallurgy taken as part of the Mining and Engineering training, or as an additional subject by Chemistry and other students, were attended in all by some 90 students. In the present session there are 73 registered students in the Department.

Southern Association (Eastern District)

A Meeting of the Southern Association of Gas Engineers and Managers (Eastern District) was held at Gas Industry House on March 21, under the chairmanship of Mr. F. Dawson.

The Officers and Committee for the year commencing July 1 were elected as follows : *Chairman*, G. L. Braidwood; *Vice-Chairman*, J. H. Dyde; *Hon. Secretary*, J. M. Webber; *Committee*, T. C. Battersby, P. E. Browne, C. H. Chester, F. Dawson, C. A. Deas, H. J. Escreet, W. A. Howie, H. Moys, C. T. Price, W. K. Tate, R. C. Taylor, A. Tennant, J. W. Townsend, N. Willsmer, with Mr. J. M. Webber (*ex-officio*). Four new members of Committee elected to serve three years under the revised constitution: A. H. Andrews, J. A. Gould, G. H. Kenyon, and D. B. Parkinson. District representatives on main Committee: T. C. Battersby, A. Tennant, N. Willsmer, and J. W. Townsend.

Mr. J. E. Davis (South Metropolitan Gas Company) then read a Paper entitled "A Necessary Journey—Discussion of Some Factors which will control the Development of Public Fuel Supply," which will be dealt with in subsequent issues of the "JOURNAL."

Preventing Burst Water Pipes

An interesting communication has been received by Messrs. Winn & Coales, Ltd., from the President of the Burnley Operative Plumbers, Mr. Frank Doney, concerning the prevention of burst water pipes as a result of frost. Mr. Doney says:

"During 25 years in the plumbing trade the problem of preventing frost bursts on water pipes has interested me sufficiently to carry out tests in a practical way under all conditions with various types of wrapping, all with little or no success. In the winter of 1943 I decided to try 'Denso' wrapping alone on part of a length of pipe which, despite having been wrapped with felt and encased in sawdust, had burst at every frost. It would have been reasonable to expect the pipe to burst again by frost after wrapping with 'Denso,' but contrary to my expectations it is the only length that has resisted the frost consistently. Obtaining such satisfactory results with this wrapping led me to experiment still further on water pipes which had also caused endless trouble during frost, and I am pleased to say that in every case 'Denso' has proved itself to be the only really efficient preventive."

Organized by the British Council, a Course on Civic Administration for the American and Dominion Forces is being held this week in the University Overseas Club, Birmingham. Included in a full programme is a talk, to be given to-morrow, by Mr. T. F. E. Rhead, Chief Chemist, Birmingham Gas Department, on "Manufacturing Town Gas for Birmingham."

A Meeting of the Institute of Fuel will be held on April 12, at 2.45 p.m., in the Lecture Theatre of the City and Guilds Engineering College, Exhibition Road, South Kensington, S.W. 7. The President, Dr. E. W. Smith, C.B.E., will give an Address dealing with the work and activities of the Institute. This meeting immediately follows the Annual General Meeting.

The Spring Meeting of the Eastern Counties Gas Engineers' and Managers' Association will be held at Grosvenor House, Park Lane, W. 1, on May 10, when Mr. J. Hunter Rioch, of Cambridge, will give his Presidential Address.

The fact that goods made of raw materials in short supply owing to war conditions are advertised in the "Journal" should not be taken as an indication that they are necessarily available for export.

Technical Staff in the Gas Industry*

By W. CLARK, B.Sc., Middlesbrough Gas Department

FOR the purpose of this Paper, the term technical staff includes technical assistants, chemists, assistant engineers (as distinct from deputies), distribution superintendents, and industrial assistants.

In the past it was the practice to recruit technical assistants by the system of pupils directly under the guidance of the chief engineer. In some cases these pupils were required to pay a premium; in others they received a nominal salary only. Without doubt these people received an excellent training, and many occupy high places to-day within the Industry. The system is, however, wrong in principle, as it tends to make a closed profession of gas engineering. The number of people whose parents could afford such training was small, and, as the Industry expanded, it was necessary to recruit staff from other sources. It is probably true to say that the majority of the technical staffs were, and are, people with a secondary school education only, and who studied for their higher qualifications in their spare time. The fortunate few studied at Leeds University either for a degree or the Higher Grade Certificates of the I.G.E. prior to entering the Gas Industry.

This naturally leads up to the question of education and the merits or otherwise of examinations. People without examination qualifications are prone to belittle examinations on the grounds that "an ounce of practice is worth a pound of theory" or some such simile. Of course, no sensible person suggests that theory alone is adequate, but when coupled with sound practical experience it leads to a greater degree of efficiency and the development of new ideas.

It is right that engineers insist that their technical people have the qualifications needed for their position in the Industry, and naturally the appropriate examinations of the Institution of Gas Engineers are preferred. This entails at least five years' study to attain the Higher Grade Certificate in manufacture or supply, and longer if studying for the Diploma Certificate. Unfortunately the number of centres with the necessary classes is small. This is certainly true of the area covered by this Association. For example, in the Tees-side area, prior to the war, there was only one course for the Institution examinations—namely, for the Ordinary Grade in Gas Supply. Consequently students have to resort to text-books; and everyone is agreed that the present range of text-books for gas engineering is totally inadequate. The standard books which are available are expensive to buy and are rarely obtainable from public libraries, from which they can only be borrowed for short periods, usually up to 14 days.

All the recognized books and specifications are available to the staff and workmen of the Middlesbrough undertaking, and steps are taken to acquire each new book as it is published, as well as all new British Standard Institute Specifications applicable to gas manufacture and distribution. This practice should be adopted by all medium and large works. For the smaller works a book-circulating scheme could be put into operation whereby students and others desiring to consult a certain book could acquire a copy for an extended period. The North of England Gas Managers' Association has a library which could well serve the interests of students. The existence of this library is not widely known, and it would be of interest to know whether a catalogue of the books is in existence.

The Gas Industry is one of the few industries with its own system of examinations for technical personnel. Most other industries accept as the necessary qualifications such professional examinations as University Degrees or corporate membership of the various engineering institutions such as Civil Engineers, Mechanical Engineers, &c. It is appreciated that engineers and managers of undertakings recognize the value of such qualifications, but naturally they favour the examinations of the Institution.

The Education Committee of The Institution of Gas Engineers in their annual reports complain of the poor standard reached by many of the candidates in the examinations. Some falling-off in the standard during wartime is understandable, but it is important that the standard expected of each student should remain high in order to maintain the prestige and value of the Institution Certificates. The new education scheme of the Institution will, when introduced, go a long way to obviate the difficulty of acquiring other professional qualifications, especially if some agreement is reached with the examining authorities of other engineering institutions. The proposed course in Gas Technology is of interest, but this surely would have been of more value to the student if the subject had been fuel technology. This would no doubt have overlapped with the recently announced education scheme of the Institute of Fuel, although a joint scheme by both Institutions should not be overlooked.

The basis of the Gas Industry, and particularly of coal carbonization, is chemical engineering rather than the other branches of engineering. Consequently the Institution examinations should be built up on this foundation. This point of view will have the support of every chemist.

No right thinking person will disagree with Mr. T. F. E. Rhead's statement in his Presidential Address to the Midland Association in 1944 that "The present method of training men by night school is a barbarous survival of the dark ages of technical education." The new Education Act goes some way to relieve the situation for the student of the future, in so far that employees will have to allow their juniors to attend part-time studies at approved Educational Centres. Unfortunately this only applies up to the age of 18, which means that the student will still have to undertake many years' study in his own time, chiefly by attending evening classes, and thus perpetuate the system so rightly condemned by Mr. Rhead. An important point to remember in connexion with the new Education Act is that part of these daytime studies will be vocational, and it would appear that the Industry will have to supply teachers for these courses, especially for apprentice gasfitters.

Mr. C. F. W. Rendle, in a Paper given to the Institution in June, 1943, advocated the provision of refresher courses for gas engineers. The yearly special gas courses at Leeds University are an excellent refresher course, as well as being of immense value to students of gas engineering. The technical staff of the Middlesbrough undertaking enjoy the benefit of these courses, all fees and expenses being paid by the undertaking. It is to be hoped that the views expressed by Mr. J. W. Pallister in his Presidential Address to the parent Association on this matter will be acted on by other engineers and managers. To obviate the journeys necessary to reach Leeds, annual courses could be provided at selected centres throughout the country, thus saving time and money as well as providing a greater opportunity for technical people to attend.

The technical personnel now serving in H.M. Forces will require special educational facilities in order to complete their training and to qualify in their professional examinations as quickly as possible. It is gratifying that the I.G.E. Education Committee have this matter in hand.

The possibility of the younger technical staffs being called up to undergo a period of military training after the present hostilities cease must not be overlooked. This training, introduced just prior to the present war, was for a period of six months, and as far as is known no Government pronouncement has been made for the future. If and when such periods of training are introduced, the effect on the studies of the personnel and the work of undertakings employing them clearly depends on the length of service required. The effect of six months' training on the studies of these people may be small but may well have a serious effect on the undertakings, especially if a number of young apprentices (say, gasfitters) are drafted at the same time. It is one thing to replace such staff by temporaries, as at present, but this is obviously impracticable for such periods of military training as envisaged. If longer periods of training are introduced, some modifications in the education scheme of the Institution may be necessary.

The Question of Remuneration

The question of qualification by examination is closely linked with that of remuneration. The Institution of Gas Engineers, under By-law No. 6 of its Royal Charter, is precluded from entering into discussions concerning salaries. Unfortunately certain individual undertakings, while insisting that the applicants for a particular post have at least the Higher Grade Certificate of the Institution or equivalent qualifications, only offer a nominal salary. Everyone is too familiar with this type of advertisement for examples to be given. The tragedy of this is that the managers advertising these vacancies are themselves members of the Institution, usually by examination, and by virtue of the salaries offered they belittle the value of the Institution examinations.

Colonel C. M. Croft, in an Address to the London Juniors, said that the salaries paid in the Industry were "scandalous," but unfortunately people would apply for such appointments. The inference is, however, that the people applying for such appointments are receiving a salary lower than the one advertised, and therefore feel justified in applying for a position offering some increase in salary.

The recent announcement by the Severn Valley Gas Corporation regarding their proposed grade of salaries for articled pupils without premium is a welcome sign of an enlightened approach to the salary problem.

The Gas Industry of to-day is certainly not overstaffed with technical personnel. This is admitted by the Industry through the creation of the Gas Engineering Advisory Boards in each of the Civil Defence Regions throughout the country. This deficiency in technical staff not only applies to the small undertakings, who admittedly cannot afford to employ them, but also to a number of the larger undertakings. It is apparent that the need for chemical control is not appreciated by the Industry as a whole, since Dr. E. W. Smith has stated that there are 1,200 to 1,500 undertakings, more than 1,000 of which do not employ chemists. A statement was made some time ago to the effect that "the chemist in the Gas Industry was the person who had

* From a Paper to the North of England Gas Managers' Association (Auxiliary Section).

to undertake all the jobs no one else could tackle"; every chemist will endorse this statement.

The mainstay as far as most undertakings are concerned is the technical assistant. He is the man who is expected to be at one and the same time an engineer, draughtsman, chemist, and, last but not least, a works superintendent, and probably in his spare time to devote himself to distribution problems. All this is excellent training for the technical assistant, but the salaries are not usually commensurate with the duties and responsibilities of these positions. This clearly does not tend to efficiency, as it is virtually impossible for one man to carry out all these duties on an average sized works.

As far as the distribution of gas is concerned, the vast field that has been opened up in recent years has created a demand for highly qualified technical personnel as distribution superintendents and industrial assistants. In the main, the salaries offered for such positions are higher than those offered to the technical staff concerned with gas manufacture. Recently the technical staff—that is, the so-called juniors—have acquired an improved status, since the Junior Associations, which comprise all technical people up to and including deputies, have been granted representation on the Council of the Institution of Gas Engineers. For this reason alone it is to be regretted that the Auxiliary Section of the North of England Gas Managers' Association is not affiliated to the British Junior Gas Association Joint Council.

Technical Development Centres

The creation of Area Technical Development Centres would be of utmost importance to the Industry and its personnel. When these centres are formed, the personnel to staff them should, on the whole, be recruited from within the Industry, though an influx of a certain number of highly qualified men from other industries would bring new ideas and methods of approach to the many problems which still face the Gas Industry.

Many juniors have more or less drifted into the Industry due to the economic position of their parents, which compels them to take the first position that is vacant, and not because they have any preconceived desire to be gas engineers. This is not the best method of obtaining the right type of recruit for a gas-works. Therefore, when the proposed centres are in operation, all new entrants should be sent to these centres for preliminary training, and after a trial period they should be passed as suitable or otherwise.

Some years must elapse before these Centres are inaugurated, and a substitute scheme could be put into operation whereby the junior entrants could spend a period of training at nearby works. This would not only enable the persons concerned to obtain a greater insight into the various branches of gas engineering, but would help the students in their studies for the Institution Certificates. The undertakings employing these juniors would benefit from their acquired knowledge, since any one works has not all the best methods in operation.

In the past the salaries and service conditions of the technical staffs employed within the Industry have not been commensurate with their duties and responsibilities. This is largely due to lack of collective bargaining power. The recent formation of staff associations is a sign that the lack of this power is being realized. Many comparisons have been made between these staff associations and N.A.L.G.O., but N.A.L.G.O. has a total membership of about 150,000, whereas the total number employed in the Gas Industry is only of this order. Furthermore, the staff, as distinct from workmen in the accepted sense, can only be a small proportion of this total. Taking into account that many of the staffs are already members of N.A.L.G.O., it is difficult to see how such staff associations can operate to provide full-time area officers not employed in the Gas Industry. The first step is surely the formation of a single staff association for the whole of the Industry. The second step is for the undertakings to recognize this association as the negotiating body for national scales of salary and service conditions.

Automatic Control of Calorific Value*

By F. J. MILLS, Swindon United Gas Company

At the Gorse Hill Works of the Swindon United Gas Company there are two retort houses, one of intermittent vertical chamber ovens, the other of horizontal retorts. The horizontal house, which was erected and put to work in November, 1943, consists of 10 settings of 10 through retorts (24 in. by 18 in. by 22 in.) with Congdon valves and standpipe offtakes fitted at both ends of each tier of retorts, the whole being governed by an 18 in. B.K. governor. The gas, after passing through a multitubular super-type condenser, joins the gas from the intermittent vertical house, and both makes then proceed in a common stream.

The calorific value of the gas from the intermittent verticals is regulated by the steaming of the chambers, and that from the horizontals by producer gas drawn from the settings under automatic control. The producers are Brookes improved patent tube regenerators with step grates, and each is fitted with a curtain arch before the producer gas distributing chamber, to ensure that all producer gas is drawn through the fuel bed. The grate area of each producer is 25 sq.ft. The draught on the main flue is controlled by a governed steam turbine and fan on a tubular waste heat boiler, through which all the waste gases from the settings pass, and is maintained at 1.2 in. W.G. at the outlet of boiler and 0.40 in. W.G. at the inlet. Approximately 0.14 in. W.G. is required above the main dampers on each setting to obtain a slight pressure in each combustion chamber.

Adjacent to the boiler is mounted a panel fitted with inlet and outlet indicating draught gauges and thermometers, together with a CO_2 indicator, all of which are electrically coupled to recorders positioned in the instrument room.

On the control panel in the instrument room are mounted the following instruments:

One Sigma recording calorimeter fitted with electric relay switch above and mains switch below.

One CO_2 recorder connected with CO_2 indicator.

One waste heat boiler, 4-way two-colour draught and temperature recorder, with a range of 0–4 in. W.G. on the draught and from 70°–1,500°F. on the temperature. Both these recorders are electrically coupled to the CO_2 indicator and thermometers on the panel adjacent to the waste heat boiler.

One recording draught gauge on retort house governor inlet with a range of +0.5 in. to —0.5 in. W.G.

One foul main indicating draught gauge, range of 6 in. W.G. to 3 in. W.G.

One steam pressure recorder.

One liquor main pressure recorder.

One foul main temperature recorder.

One 200–500 voltmeter controlled by a 6-way switch, 3 switches between each 2 phases reading 400 volts, 3 switches, one on each phase to neutral, reading 230 volts. This locates any faults which may arise on any one phase, thereby saving considerable time in the event of an electrical breakdown.

Three ammeters (one on each phase).

One water level indicator for water storage tank.

These gauges and recorders ensure that the carbonizing plant is under close control at all times.

Producer Gas

Into the end of each producer gas distributing chamber is fitted a 4 in. cast iron pipe which joins an 8 in. cast iron collecting main extending the full length of the house, where it is dipped into a 12 in. water seal. Each individual offtake pipe is provided with a hot gas valve, on the inlet side of which is fitted a water spray. The water cock controlling the spray is connected by a lever to the hot gas valve, the operating of the gas valve thereby automatically opening or closing the water cock. Water sprays are fitted on the collecting main at the side of each 4 in. connexion, the water from all the sprays running back to the 12 in. water seal and away to a settling pit, the water from the sprays washing the mains clear of all deposits left by the producer gas and cooling the gas from approximately 350°C. at the inlet valve to approximately 30°C. before entering the foul main. All bends on the producer gas main are provided with handholes to facilitate cleaning when required. As a precaution against the 12 in. main seal becoming blocked, thereby flooding the main and producers, two 2 in. safety seals are fitted on the top of the collecting main through which the water would visibly overflow to the floor of the house.

The outlet end of the collecting main extends vertically for 6 ft., where it runs under the charging floor to the end of the house, and joins the foul main outside the building at a point immediately above the instrument room.

Prior to this connexion is fixed a motorized modulating valve, complete with by-pass valve. This motorized valve received its impulses from an electric relay switch controlled by the position of the pen of the Sigma recording calorimeter in the instrument room (fig. 1).

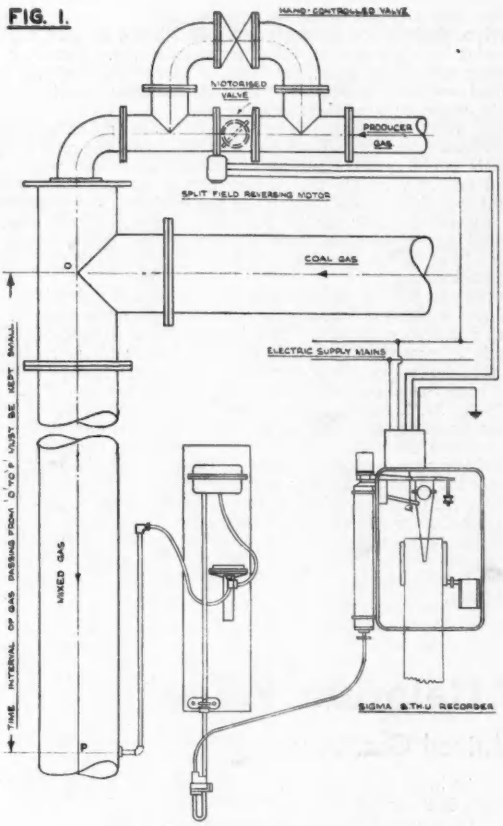
As this calorimeter has to work on crude gas from the foul main, which is maintained at a vacuum of approximately 4 in. W.G., some type of exhauster had to be fitted, complete with washer and purifier, and the whole duplicated for maintenance purposes.

After experiment a rotary two-bladed exhauster of a capacity of 20 cu.ft. per minute, driven by ½ h.p. electric motor, was installed.

The gas is drawn from the foul main about 20 ft. away from the point where the two gases meet, by inserting into the top of the main a piece of 1 in. pipe. This pipe reaches to the bottom of the main and is drilled with ¼ in. holes. This ensures a representative sample of the mixed gas being drawn from the main.

* Paper to the Western Junior Gas Association.

FIG. 1.



AUTOMATIC CONTROL OF CALORIFIC VALUE.

On the ¼ in. pipe line connecting the foul main to the inlet of exhauster, a small 6 in. cyclone is fitted to assist in the removal of any tar that may be drawn into the inlet pipe.

The outlet pipe from the exhauster to the washer is of ½ in. diameter and has a branch returning direct to the foul main. This branch pipe is fitted with a cock adjusted so that a constant pressure of not less than 6 in. W.G. is kept on the calorimeter service. This has the effect of increasing the gas velocity, thereby reducing the time lag and getting a quicker response on the Sigma chart to a change in calorific value.

Washers

The washers are of the multi-plate type, and are 6 in. in diameter and 3 in. in depth.

Entering at the top and passing through the inlet pipe, which is carried down to ¼ in. from the bottom, the gas bubbles through a ½ in. liquor seal and then passes through finely perforated plates and leaves by the outlet at the top. The liquor supply has a visual feed into a tundish, fixed on a 40 in. W.G. seal leading into the top of the washer, with the overflow ½ in. from the bottom of washer.

From the washer the gas is passed through ¼ in. pipes to the purifier.

Purifiers

These are made from 3 in. pipe, are 3 ft. in length, and flanged top and bottom to facilitate filling and emptying. Each contains 6 in. straw at the base with 20 in. of oxide on top.

Leaving the purifiers, the gas passes through the roof of the instrument house to a condensate pot immediately behind the calorimeter, the supply to the recorder being teed-off the line 4 ft. above the pot. All drains from the cyclone, exhausters, and washers are sealed in a 4 in. pot fixed on the side of the foul main, with the overflow returning to the foul main.

The whole of the unit is mounted on a steel bedplate fixed by brackets to the top of the foul main at the nearest convenient point to the recording instrument. This was done to ensure that all pipe runs were as short as possible, and the pipes were kept of small diameters to reduce the time lag between the gas passing through the foul main and that burning in the calorimeter.

Electric Relay C.V. Control

The motive power used to move the butterfly modulating valve on the producer main is a ⅛ h.p. split-field A.C. motor, with a reducing gear ratio of approximately 150/1 and clockwise and counter-clockwise limits incorporated. The excitation of this motor is obtained by an electric relay mounted on top of a Standard Sigma B.Th.U. recorder (fig. 2).

The elements of the relay consist of a scroll cam J, driven at constant speed by a synchronous electric motor and two pairs of contacts. The speed can be regulated by a set of change wheels, but it was found in our case that one revolution in three minutes gave the best results. The lower contact arms are lifted, one after the other, at regular intervals by the cam, and are thus brought into contact with the upper contacts which are controlled by the calorimeter.

Assuming the calorimeter is indicating the correct C.V., the above cycle of operations would cause each pair of contacts (SX and TW) to close for equal periods of time. These contacts are so connected to the windings of the motor valve that they control its direction of rotation. Hence, on the above assumption, the mixing valve will turn through equal and opposite angles at each half cycle. This angle can be made as small as desirable by adjusting the screws K and L which limit the time the contacts remain closed.

A change in the calorific value of the gas will change the position of the calorimeter pen, and in consequence the link N, coupled by the pen mechanism, will alter the position of platform F. This causes one pair of contacts to remain closed for a longer period and restricts, or completely prevents, the closing of the other pair of contacts. Thus the motorized valve is opened or closed an amount governed by the extent to which the C.V. has increased or decreased. This tends to restore the mixture to the correct C.V., and when this condition is obtained the system reverts to a slight "hunting" process, but with the valve in its newly found position.

The scale required can be adjusted to any calorific value on the chart by the tilting of the electric relay in either direction by means of screw H, which allows the calorimeter pen to travel its predetermined distance, higher or lower on the chart.

The declared value of this Company's gas being 450 B.Th.U., a quality of approximately 480 B.Th.U. is needed from this house to allow for a reduction of approximately 30 B.Th.U. by benzole stripping, so the pen is allowed a range of approximately 460–500 B.Th.U.

Since the starting of the automatic control we have not had a sufficient period of continuous running to enable exact figures to be furnished, owing to the big variation in the class of coal being carbonized, but below is given a typical analysis of horizontal gas with

FIG. 2.

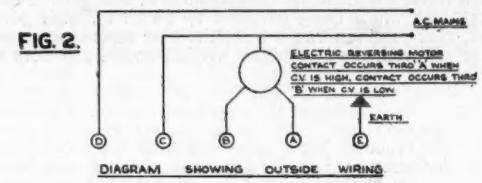
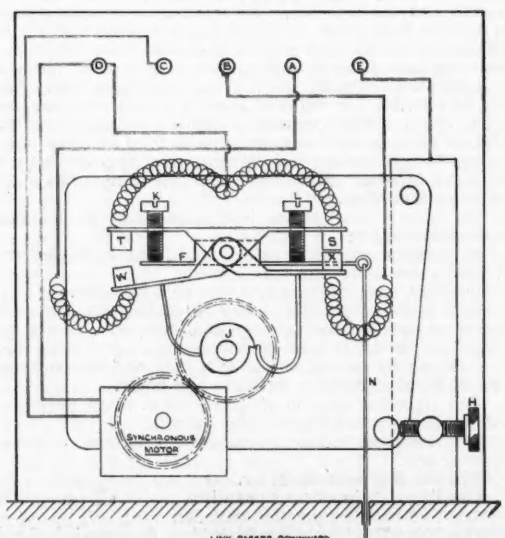


DIAGRAM SHOWING OUTSIDE WIRING



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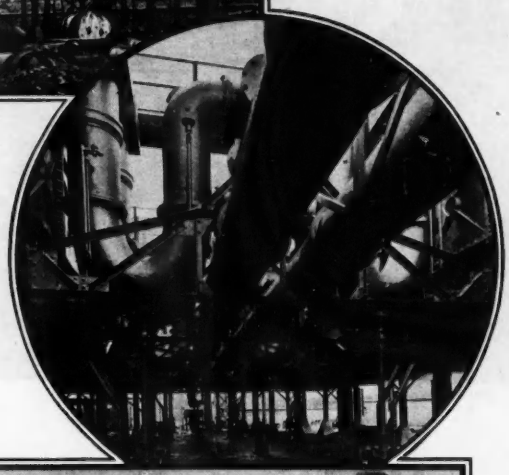
by Dempster OF ELLAND

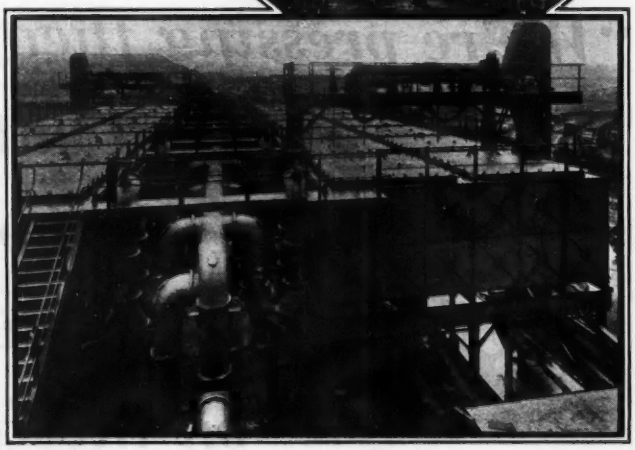


As specialists in Purifier design, we have given considerable attention to this type of installation, and have built many such sets.

We illustrate a recent contract comprising 8 Boxes, 30′ 0″ × 30′ 0″ × 10′ 0″ deep on Steel Structure, with our Combined Travelling Oxide Plant and Cover Lifting Gear.

Top: General view. (In background, Gasholder also erected by us.)
Inset: Showing Connections.
Bottom: Overhead view.

These Purifiers designed for a gross capacity of 8,000,000 cu. ft. of gas per day.



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ROSE MOUNT IRON WORKS, ELLAND, YORKS.

London Office: 16 QUEEN ANNE'S GATE, WESTMINSTER, S.W. 1.

and without producer gas, producer gas and intermittent vertical gas; all these tests are taken from the foul main before benzole stripping:

Plant.	CnHm.	CO.	CH_4.	H_2.	CO_2.	O_2.	N_2.	Calculated C.V.
Horizontal without P.G.	2.0	8.6	26.3	52.5	1.6	0.7	8.3	504
Horizontal with P.G.	1.8	10.0	24.5	48.7	2.0	0.6	12.4	483
Producer gas	—	25.4	—	7.5	7.3	*Nil*	59.8	110
Steamed I.V.C.O. without P.G	1.6	10.4	24.0	50.0	2.0	0.4	11.6	478

Specific gravity (town gas) without producer gas 0.515
with producer gas 0.537

We had considerable trouble when starting, due to the pipes being too large, with the result that they very quickly became blocked with tar, owing to the slow gas velocity, also the service to the recorder being much too long, causing considerable time lag. Since we cut the length and size of pipe lines to the minimum, we have had no further trouble.

This system of control is only on the horizontal retort house at present, but in order to get the finest possible limit of variation on the make gas it is finally proposed to add a further automatic control immediately on the exhauster inlet, where small quantities of low quality diluent will be supplied under control to ensure regular calorific value. It is an outstanding requirement that quality and pressures of gas supplied shall be constant in order to achieve not only efficiency in operation but, more important still, satisfaction to the consumer.

COMPANY MEETING

Tottenham and District Gas Company

The Annual Ordinary General Meeting of the Tottenham and District Gas Company was held on March 20 at Woodall House, Lordship Lane, Wood Green, London, N. 22.

Mr. HENRY WOODALL, the Chairman, who presided, said: I will first ask you whether the Directors' Report, the Auditors' Report, and the Accounts as printed and submitted shall be taken as read. (Agreed.) You will wish to have a statement of the position of your undertaking now as compared with the last pre-war year 1938, and I give you the main figures. One of the most significant points is that the capital employed per million cu.ft. of gas sold, owing to the increase in sales, has gone down from £496 per million cu.ft. sold to £453 per million to-day—a satisfactory figure. During the six years from 1939 to 1944 the Company has paid prior interest charges; paid preference dividends at authorized rates; paid basic dividend authorized; made adequate provision for income tax on the profits of the current year; increased its statutory funds by £33,500; increased its carry forward by £36,200; and increased its number of consumers by 5,000. These are modest increases, but they do show that the Company has been more than able to keep its head above water, and in spite of the war is in a thoroughly sound financial position.

Your attention will now be drawn to the 1944 figures as compared with 1943. The 1944 accounts have been drawn up in a slightly different form recommended last year by the Panel of Accountants of London Gas Companies which the Board decided to adopt. It makes an always clear statement a little clearer. Since 1938 the price of coal, our basic raw material, has been increased from 25s. 1.84d. to 49s. 7.86d., or nearly 100%. Wages have risen by £91,427, and would have been more had we been able to obtain all the labour and material we wanted. Our works are not quite in peacetime order, but they have been well maintained.

The results for 1944 are satisfactory. After paying all dividends and providing for taxation, provision for war damage contribution, co-partnership, &c., which will absorb £293,931, we have a surplus of £5,502 to add to the carry forward. The capital expenditure per million cu.ft. of gas sold is now only £453, as against £467 in 1943. The total cost of maintenance and renewal of buildings and plant shows a satisfactory addition of £30,716, mainly due to the increase of special contribution to retort renewals reserve, this having been increased from 2s. 6d. to 3s. a ton of coal carbonized. We have been able to transfer to the renewal fund £15,000. Another satisfactory item is the reduction of the gas unaccounted for from 6.49% to 5.31%, a saving of 77½ million cu.ft. Provision has been made for war damage contributions in accordance with the latest information as to the contribution which may be levied on gas undertakings under the scheme for the Gas Industry still under consideration. In the years 1939 and 1941 there was reserved for possible bad debts on hire purchase account the sum of £17,750. This reserve, being now free, has been appropriated to the provision for war damage contributions account, which stands at £83,474.

The Balance Sheet shows strength as regards both fixed and liquid assets, which is shown by the following figures: Excess of current assets over current liabilities, £659,485; reserves have been increased by £25,454; provision for deferred repairs increased by £31,680; provision for War Damage Contributions, £17,554. The Company's liability to the pension fund trustees has been reduced by £66,090. A careful estimate has been prepared for 1945, and, subject to there being no further increase in the cost of coal, wages, and oil, the Company should be able to carry on through this year without any further increase in the price of gas.

The price of coal has nearly doubled, and there have been a number of additions to miners' wages, and I think I am right in saying that every increase in wages resulted in a smaller production of coal. The coal we get now is not properly screened, and the quantity of ash and moisture is often very excessive. In pre-war days we bought our coal on a specification as to ash and moisture, and we were always pleased to pay the extra charge when the ash and moisture was below the specified amount. It is now almost impossible to obtain any guarantee of quality, &c. We have to take what we can get and make the best of it. As has been said elsewhere, the Gas Industry is under a legal obligation to supply gas of a declared standard calorific value, and the purchase of the necessary raw material, coal, should be placed on a similar basis.

As to the future of our Industry, there is no need for any despondency. One thing very necessary is that our Industry should not be too much interfered with by Government Departments. In war restrictions are necessary and we accept them without complaint, but they do cause delay, sometimes very galling. One of the tasks which will be afforded the highest priority as soon as labour and materials become available is the provision of new houses to replace those which have been destroyed, and to provide accommodation for the many young people who will want to set up their own homes for the first time. Provision should be made for a supply of gas to every new house erected in a district where gas is available or likely to be available, so that the occupier may benefit by the amenities of "heat on tap" if he or she so desires. From our own experience we know well what form of service the majority of householders choose. In 1939 gas was used for cooking in nearly 90% of the houses in the district supplied by the Company, while during the seven years prior to the outbreak of war gas cookers were installed in over 90% of the new houses built.

In spite of the war period we have by no means neglected research work, and the good results obtained have been very clearly demonstrated in many fields. As you can imagine, there will be a great deal of reconstruction to be done after the war is over, and modern plant is more economic than much of that existing. In our Company a great deal of work has been put in hand, and had labour and materials been available more of it would now be in use. The cost of the work will be heavy, but I hope we shall be able to charge the extra cost over pre-war to depreciation or possibly to a suspense account to be written off in a few years' time.

All the endeavours of the Company and its employees during the past five years have been devoted to the successful prosecution of the war. We have cheerfully put up with all the inconveniences caused by the war, whether these have been in the form of controls exercised by various Government Departments or have been due to enemy action. For many reasons entirely outside our control we have been prevented from affording to our consumers that standard of service which it was our pride to maintain prior to the war. We are grateful to all those who have been patient with us during these strenuous years, and I am confident that when our wartime story can be told we shall receive the thanks of the many thousands we have been privileged to serve under difficult conditions.

In conclusion, such results as I have been able to report could only have been achieved by everybody in the service of the Company pulling his weight, and we are grateful for the good service which we have obtained. We cannot forget the 1,080 of our men serving with His Majesty's Forces; we constantly have them in our thoughts. Some have lost their lives, and our deep and sincere sympathy goes out to their relatives. The rest we hope shortly to welcome home again.

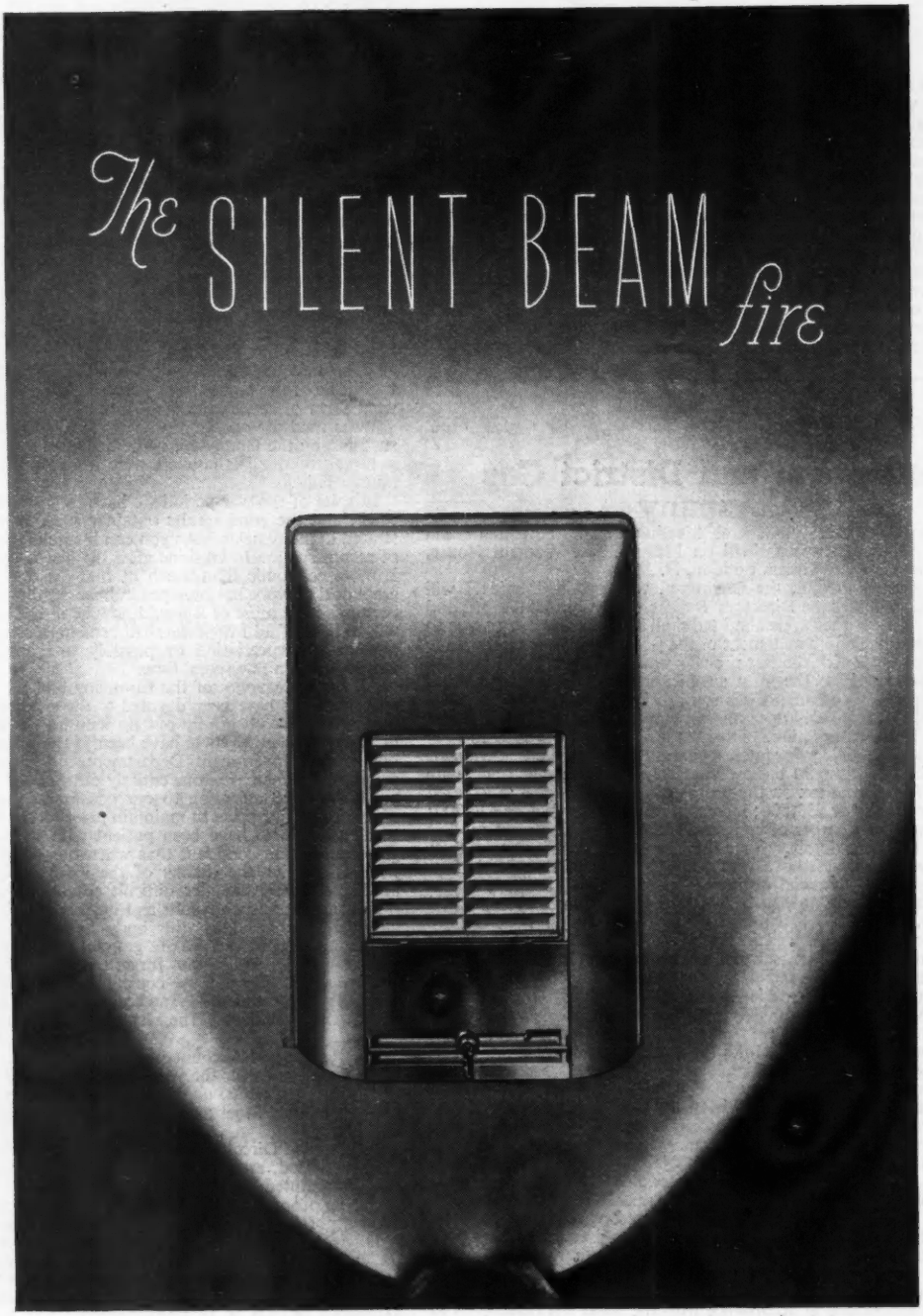
The Report and Accounts were adopted.

Final dividends for the year ended Dec. 31, 1944, were declared at the rate of 2½% actual on the 5% Preference Stock; 2¾% actual on the 5½% Preference Stock; and 2½% actual on the Ordinary Stock, all less tax.

The retiring Directors, Mr. H. G. Palmer and Mr. Thomas Hardie, were re-elected, and the retiring Auditor, Lt.-Col. Wilfrid C. Smith, was reappointed.

On the proposition of Mr. W. R. Cruse, seconded by Mr. J. Beale, and supported by Mr. W. Wright, the best thanks of the proprietors were given to the Chairman, Directors, and Auditors, and also to the Officers, Staffs, and Workmen, for their services to the Company during the past year. The vote of thanks was acknowledged by the Chairman, Col. Harold C. Smith (Chief Engineer and General Manager), and Mr. R. H. Epps (Secretary and Accountant).

Dundee Gas Committee proposes, subject to the approval of the Police and Lighting Committee, to suspend the lighting of street lamps during the period of Double Summer Time. It is estimated that this will save about 400 tons of coal. Reporting on the condition of the carbonizing plant, the Gas Committee states that rather than spending £29,000 on repairing the retorts it is considering an expenditure of £65,000 on reconstructing the retorts and putting in 30 chambers instead of 20.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COMPANY MEETING

Radiation Ltd.

At the Ordinary General Meeting of Radiation Ltd., makers of Regulo New World cookers and gas appliances, the Chairman, Mr. J. F. DAVIES, said: The gross income for the year 1944 from the subsidiary Companies amounts to £294,978, compared with the corresponding figure of £300,478 for the previous year. Deducting Income Tax the net income, including Bank Interest and Transfer Fees, is £148,522, compared with £151,110 for 1943.

With the balance of £155,855 brought forward from last year and deducting the interim dividend paid on the Preference Stock, there is a balance available for distribution of £288,064, as mentioned in the Directors' Report.

From this balance it is proposed to pay the final dividend on the Preference Stock, and a dividend of 10% on the Ordinary Stock. These dividends, less Income Tax, will absorb £129,441, leaving a balance of £158,623 to be carried forward.

In the Radiation Balance Sheet the principal asset is—Investments in and Amounts Owing by Subsidiary Companies, which at £3,833,765, shows an increase of £7,766. This item appears also on the Liabilities side of the Statement of Combined Assets and Liabilities of the Subsidiary Companies, and forms the link between that Statement and the Radiation Balance Sheet.

The Combined Statement shows the total assets of the Subsidiary Companies at £6,224,816, an increase of £191,300 on the year. Of these Assets the Freehold and Leasehold Buildings, together with Plant, Machinery, and Fixtures, stand at £1,029,060, a reduction of £10,207 from the figure at December, 1943. The reduction represents the amount of depreciation written off in excess of the additions during the year.

The current assets, consisting of Stocks, Debtors, Investments, and Cash, total £5,195,756, an increase of £201,507.

On the other side of the Combined Statement, Creditors, including Taxation and Pensions Reserves, amount to £1,313,381, which is £24,085 greater than a year ago.

The next item on the Liabilities side of the Statement is Reserve for Post-war £750,000. This Reserve was created a year ago in the Accounts of the Subsidiary Companies. In my Address last year I gave the reasons for the creation of this Reserve. It is to meet anticipated post-war expenditure in developing our business and re-equipping our factories as may be necessary.

The final item on the Liabilities side of the Combined Statement is the balance of £327,670, standing to credit of Profit and Loss Accounts. This item represents the balance of the profits of the Subsidiary Companies for the year after paying dividends to Radiation Ltd. plus the amount brought forward from last year.

The past year has been one of difficulty in many respects, but we have endeavoured to look ahead. So far as it has been possible and expedient, we have taken steps to ensure that our organization shall be available to produce the domestic equipment that will be needed in the post-war period for housing programmes, and to meet the very large demand from householders which we know to exist and which it has not been possible to satisfy during the period of emergency.

It is our intention to meet that demand by producing equipment which will permit of cooking being carried out with less trouble, more economically, and even better than has been possible in the past; equipment which will allow of more generous heating of the home without an increased consumption of fuel, and equipment which will give the necessary supply of hot water for domestic purposes.

For many years the companies constituting the Radiation group have been guided in their developments by the work of Laboratory and Research staffs, and to this is due, in no small part, the deservedly high reputation of our products. In the manufacture of domestic cooking and heating equipments we have exceptional experience, and from the point of view of design and quality our apparatus is pre-eminent, and to that we can add ability to produce and supply on a very large scale. So soon as conditions permit us to do so, we will proceed to the making of our new appliances—new gas cookers; new gas fires; new gas water heaters—not only more effective, but designed especially with consideration to maintenance, a problem which must be ever present in the minds of those responsible for providing the public with efficient service.

Certain of our constituent companies, whose origin dates back more than a century, were engaged in their earlier days in making apparatus solely concerned with the burning of coal—for example, "Eagle" is a household word in this sphere. With our experience in the use of coal we have been able the more readily to design effective appliances for use with coke; appliances which need far less attention and which provide a 24-hour service when required, thus minimizing the work necessary in supplying fuel and removing the ashes. The domestic demand for coke should show a big increase in the future, and this demand will primarily be met by the carefully graded coke supplied by the Gas Industry.

The smokeless fuels supplied by the Gas Industry—*i.e.*, gas and coke—are able to satisfy the varying needs of the community at prices within the reach of all.

I have indicated that we are ready with new designs of domestic appliances, and these will embody a number of effective technical conceptions, all designed to improve performance and to reduce the cost of running. We will get into full production when the war situation permits labour to be available. Although our products are of high priority in civilian needs we still require draughtsmen, technicians, toolmakers, moulders, and others.

We have been privileged to participate in providing equipment for the Ministry of Works emergency houses, and for this purpose both our gas and solid fuel domestic appliances are being used.

We have given much thought to the subject of the post-war kitchen. It is more than two years since we installed a prototype kitchen at Radiation House, Birmingham, and later we erected a post-war kitchen at our premises at Stratford Place, London, W. 1. We have been gratified at the very large interest which these displays have attracted, and have been glad to welcome many visits from the executives of gas undertakings, from architects, housing authorities, borough surveyors and engineers, and others from all over the country, with whom we had opportunities of conferring. It has been our privilege to put forward various ideas and suggestions, not only with regard to cooking and heating appliances, but in connexion with ventilation and plumbing. We are hoping that these efforts on our part will have served some purpose towards solving the many problems which are inseparable from housing plans. We feel that the day is past when the kitchen, as built, is merely a shell into which the householder needs to fit cooking equipment and storage space. It is evident from the many reports published that women are taking a great interest in post-war household equipment. These reports and the various model kitchen exhibits, many of which have been sponsored by the Gas Industry, all serve to stress the insistence on the provision of a well arranged kitchen with adequate equipment.

In January last we published our brochure, *Post-war Housing: Heating, Cooking, and Hot Water Services using Gas and Coke*. This brochure describes how the idea of grouped equipment can be applied in a variety of ways, and was published with the object of assisting architects, local authorities and others responsible for house design, to plan the kitchen and ancillary services to the best effect. The exceptional experience of the constituent firms of our organization are at the disposal of all those concerned with this important and appealing subject.

In view of all the difficulties encountered during the year 1944, I feel that the trading result for that year was satisfactory. I would like to take this opportunity to state that a continuance of the unsettled conditions now prevailing must necessarily affect the results of the current year. Your Board, however, are fully alive to the situation, and are taking every step which is open to them to meet it.

We have well in mind our employees who are serving in the Armed Forces and in the various Services, and we look forward to their return to the service of the Company. We extend our sympathy to the families of those who have given their lives for the country, and to the relatives of those who are prisoners of war.

Birmingham Electric Furnaces, Ltd., have changed their name to Birlec Ltd. The Company, which is a subsidiary of the Mond Nickel Company, Ltd., manufactures gas furnaces as well as electrical equipment. Policy, management, and personnel will not be in any way affected by the change of name.

Members of The Institution of Gas Engineers are invited to attend an informal meeting to be held at the Royal Institute of British Architects, 66, Portland Place, W. 1, on April 10, at 6 p.m., when a Paper on "The Work of the Codes of Practice Committees" will be presented by Mr. C. Roland Woods, M.B.E. No cards of admission are required.

Since October last £114 has been raised by the employees of the Salford Gas Department for the provision of comforts for wounded soldiers at the hospitals in Salford. Each employee is invited to contribute each week a sum not exceeding 1s., and no fewer than 10,550 cigarettes, 1,152 razor blades, and 432 sticks of shaving soap have been distributed, in addition to writing pads, envelopes and books, &c.

Edinburgh Gas Department has been authorized by the Ministry of Fuel and Power to increase the price of gas by a penny per therm. Mr. J. Jamieson, Engineer and Manager, in a report submitted to the Public Utilities Committee, stated that the price had remained steady for the last five years, and the increase had been authorized after considering the provisional estimate for the coming year, which showed an estimated loss of £94,305. The increase was due primarily to the increased cost of coal, which had risen from 20s. to 40s. Part of the 20s. was due to changes in sources of supply, the introduction of uniform prices, and increases in railway rates, the actual official increase being 15s. 11d. per ton.

The Wisdom of the employment of Italian "collaborators" at Chesterfield Gas-Works was questioned by Councillor E. Smith at a meeting of the Chesterfield Town Council. The men were able-bodied, and he thought there were other places where they should be working or fighting. If they did no more work than he had seen some of them do, the sooner they went back to Italy the better. Councillor F. S. Short (Chairman of the Gas Committee) expressed personal agreement with the sentiments of Councillor Smith, but said unfortunately they could get no other labour and were more or less forced into the position. The Italians had helped, and without them he was afraid the Gas Department would not have been able to carry on at the moment. They would be dispensed with as soon as British labour was available.

GAS PRODUCTS PRICES—STOCKS AND SHARES

The London Market Mar. 26.

As from March 5, by the Coal Tar Products Prices Order, 1945 (S. R. & O. 1945, No. 229), the maximum price of Pitch for briquetting has been increased to 60s. per ton f.o.r. supplying works, and the prices for Road Tar, as fixed by the Coal Tar Products Prices Order, 1943, S. R. & O. No. 1528, have been increased by one half-penny per gallon. There is also an increase of 5s. per ton in the price of standard Creosote/Pitch Mixture.

The prices of other products are unchanged.

Control of Benzole and Coal Spirit Order, 1944 (S.R. & O. 1944, No. 172), is in force.*

By this Order the price of Motor Benzole is fixed at 2s. per gallon. The Order also lays down the method of evaluating Crude Benzole, and calls for periodical returns to the Ministry of Fuel and Power from all producers of Crude and Refined Benzole.

Control of Toluene (No. 4) Order, 1944 (S. R. & O. 1944, No. 170), contains an amendment of the Control of Toluene (No. 3) Order, 1943.

There is also the Control of Benzole and Coal Spirit (No. 2) Order, 1944 (S. R. & O., No. 988).

Coal Tar Products Prices (No. 2) Order, 1944 (S. R. & O., 1944, No. 1051), allows increases in the maximum prices for all forms of Naphthalene.

* Slightly amended by Control of Benzole and Coal Spirit (No. 2) Order, 1944.

The Provinces Mar. 26.

The average prices of gas-works products during the week were : Pitch and Crude Tar,* Toluole, naked, North, 90's, 2s. to 2s. 2½d., pure, 2s. 9d. (now controlled by S. R. & O. 1944, No. 988, operative from Sept. 1, 1944. Benzole and Coal Spirit, also Coal Tar Naphtha and Xylole, are now controlled by the Control of Benzole and Coal Spirit Order, 1944, dated Feb. 18, 1944, S. R. & O. 1944, No. 172, operative from March 1, and S. R. & O. 1944, No. 988, part 1, operative from Oct. 1, 1944, Carbolic acid, 60's, anthracene, creosote oil (hydrogenation), coal tar oils (timber preservation, &c.), and strained anthracene oil controlled by the Coal Tar Products Prices Order, 1943, dated Oct. 20, 1943 (S. R. & O. 1943, No. 1528), operative from Nov. 15, 1943, Naphthalene now controlled under S. R. & O. 1944, No. 1051, operative from Sept. 22, 1944.

Attention is called to Coal Tar Products Prices Order, 1945 (S. R. & O. 1945, No. 229), referred to on p. 305, "JOURNAL" of March 7.

* In regard to pitch and crude tar prices we would ask readers to refer to the editorial note on p. 396 of the "JOURNAL" for Sept. 10, 1941.

Scotland Mar. 24.

Spot business is slow, but deliveries are well maintained. Refined tar*: Yield to Distillers is 5d. per gallon *ex* Works, naked. Creosote oil: Timber preserving quality,* 5½d. to 6½d.; hydrogenation oil,* 5¾d.; low gravity or virgin oil,† 7¼d. to 7½d.; benzole absorbing oil,* 6½d. to 8d. per gallon. Refined cresylic acid* is 3s. 6d. to 4s. 6d. per gallon *ex* Works, naked, according to quality. Crude naphtha†: 6½d. to 7d. per gallon. Solvent naphtha*: Basic prices delivered in bulk, 90/160 grade, 2s. 8d., and 90/190 Heavy naphtha, Unrectified, 1s. 10½d.; Rectified, 2s. 2d. per gallon. Pyridine†: 90/160 grade, 13s., and 90/140 grade, 15s. per gallon.

* Price controlled. † Uncontrolled.

Markets continued very quiet last week and prices in most sections were inclined to be irregular. Details of the Australian Conversion operation caused some improvements in the gilt-edged market, however, and selective buying led to a few features among industrials.

There was less business in the Gas Market, but the tone remained very firm and all price movements were upwards. Except for the stocks of the larger undertakings very little is available, and a small parcel changing hands is sufficient to harden the price. It will be seen that several Gas Light issues made fractional improvement, and a feature in the Official List was the strength of Alliance and Dublin ordinary, which closed 10 points higher, while in the Supplementary List, Cheltenham ordinary on changing hands at 105 rose 5 points.

The following price changes were recorded during the week:

SUPPLEMENTARY LIST

Cheltenham Ord.	103—108	+5

PROVINCIAL EXCHANGE

Bath Cons.	114—116	+1

OFFICIAL LIST

Alliance & Dublin Ord.	117—122	+10
Colonial Gas Association Ord. (*x.d.*)	16/6—18/6	Mar. 19
Ditto 8 p.c. Pref. (*x.d.*)	22/—24/—	"
Gas Light Units	23/3—24/3	+–/3d.
Ditto 3½ p.c. max.	81½—84½	+½
Ditto 4 p.c. Pref.	101½—104½	+½
Ditto 3 p.c. Deb.	88½—91½	+½
Liverpool Ord.	126—129	+1
Primitiva Holdings 6 p.c. Red. Cum. Pref.	99—104	+2
Severn Valley 4½ p.c. Cum. Pref. ...	21/6—22/6	+–/3d.
South Metropolitan Ord.	94—97	+1
South Suburban 5 p.c. Pref.... ...	113—118	+1
United Kingdom Gas Corporation 3½ p.c. Red. Deb. (*x.d.*)	97—102	Mar. 19
Wandsworth Cons.	122—127	+1
Ditto 4 p.c. Deb.	128—133	+2

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Candidates should state their age and position under the National Service Acts and Essential Work Orders. The successful applicant will be required to pass a Medical Examination.

Applications (giving the names of three Referees, but unaccompanied by Testimonials or original documents) should be addressed to the Chairman at 2, Chart Lane, Reigate, Surrey.

March 15, 1945.

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APPLICATIONS are invited for the position of TECHNICAL ASSISTANT at a commencing Salary of £350 per annum, inclusive of cost of living bonus. Candidates should have first-hand experience of the Technical and Chemical Control of Gas Production Plant (Horizontals, Verticals and Water Gas) and the recovery and working up of by-products, including the carrying out of all necessary tests.

Candidates should hold at least the Ordinary Grade Certificate in Gas Engineering of The Institution of Gas Engineers, or equivalent qualification.

Applications, which must be made on the form obtainable from the undersigned, should be received not later than Monday, April 9, 1945.

J. HUNTER RIOCH,
Managing Director and Secretary.

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Applications endorsed "Superintendent," stating Age, Training, Experience, Qualifications, and position in relation to the National Service Acts and Essential Works Order, and accompanied by *copies* of not more than three Testimonials, should be delivered to the undersigned not later than April 16, 1945.

Council Offices,
Clwyd Street,
Rhyl.
March 22, 1945.

A. E. EDWARDS,
Clerk to the Council.

ACCRINGTON DISTRICT GAS AND WATER BOARD

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APPLICATIONS are invited for the position of TECHNICAL ASSISTANT.

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March, 1945.

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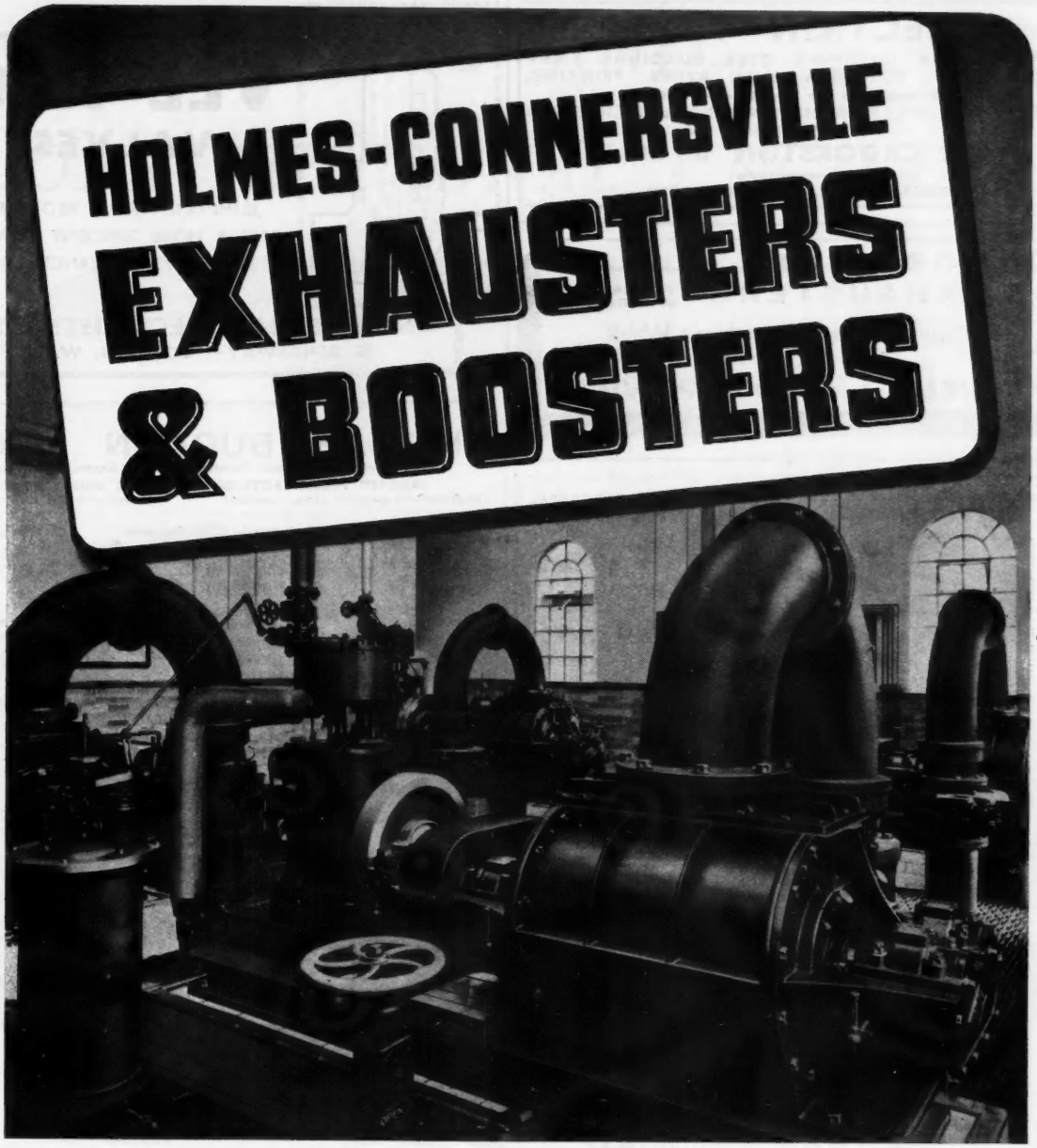

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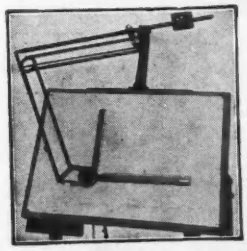

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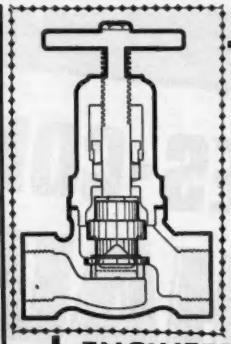

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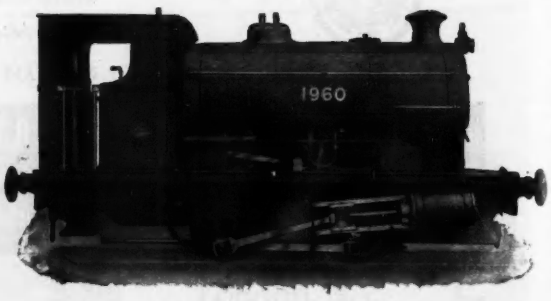

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Fig. 165
LIFT PUMP FOR GAS SYPHONS. EXCLUDING 24 FT. DEEP

Fig. 256
BELT DRIVEN SINGLE RAM PUMP FOR 40 LBS. PER SQ. INCH.

Fig. 257
BELT DRIVEN SINGLE GUIDED RAM PUMP FOR 60 LBS. PER SQ. INCH.

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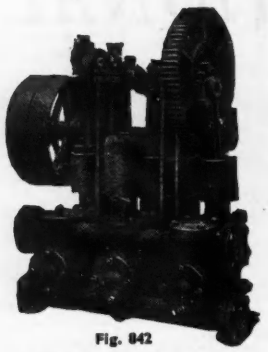

Fig. 842
VERTICAL TREBLE RAM PUMP FOR 150 LBS. PER SQ. INCH.

Fig. 187
DOUBLE ACTING HORIZONTAL PUMP.

Fig. 69
COVERED HEAD CHAIN PUMP.

Fig. 324
BELT DRIVEN DOUBLE BARREL PUMP FOR DEEP WELLS

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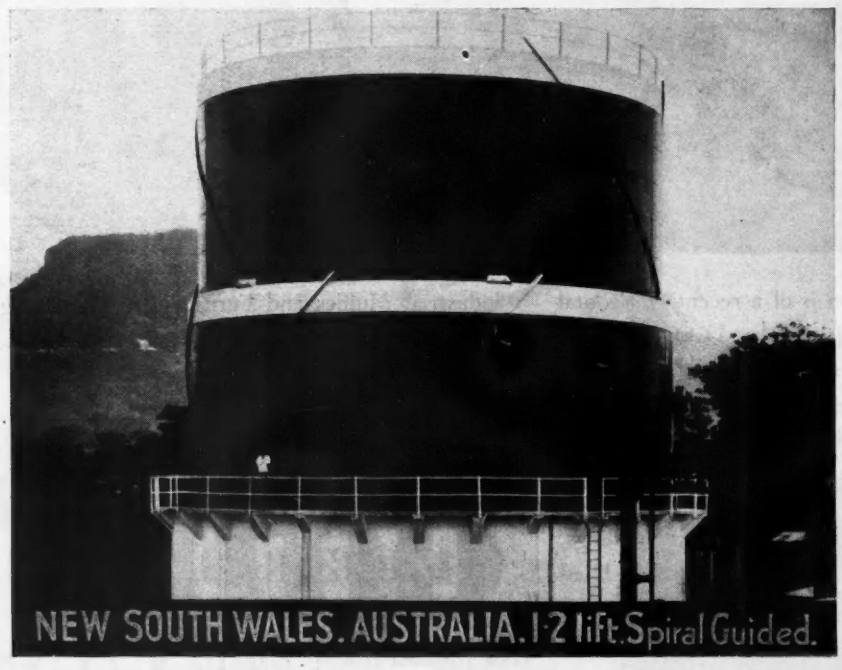

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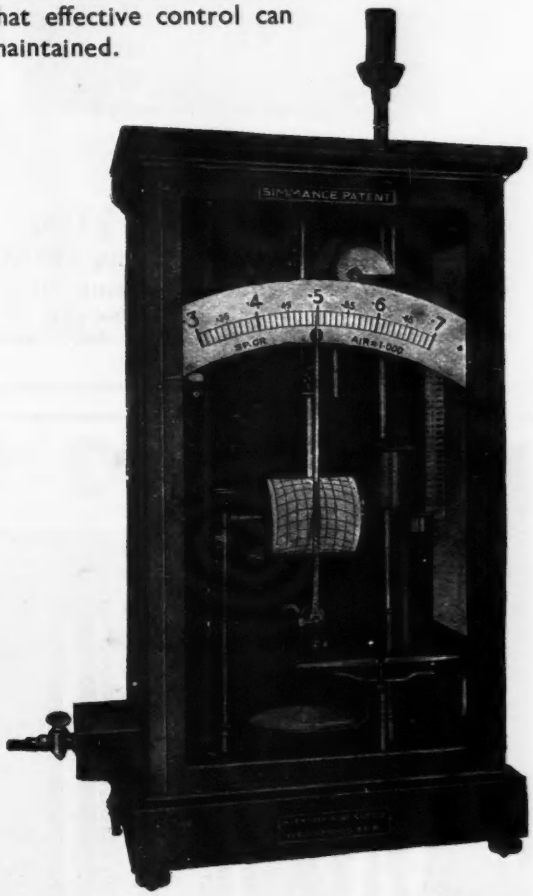

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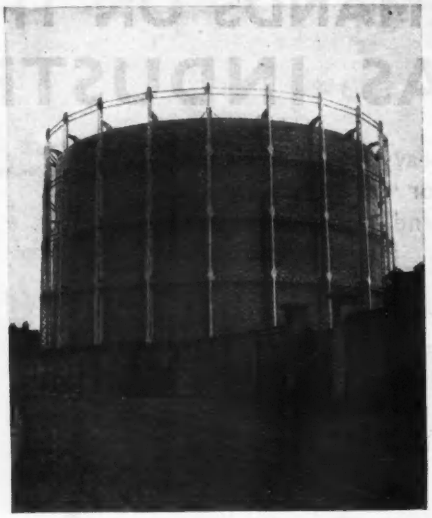

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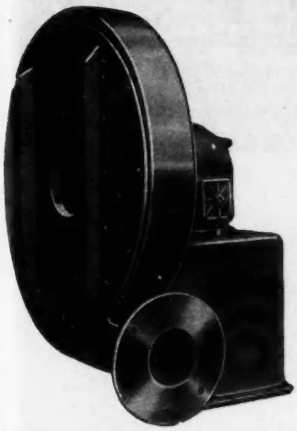

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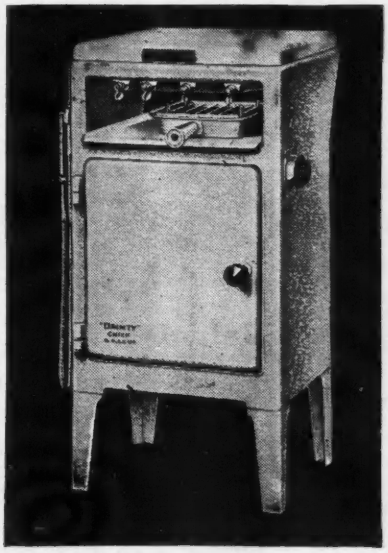

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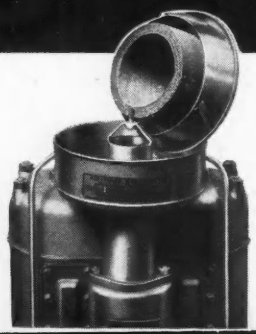

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